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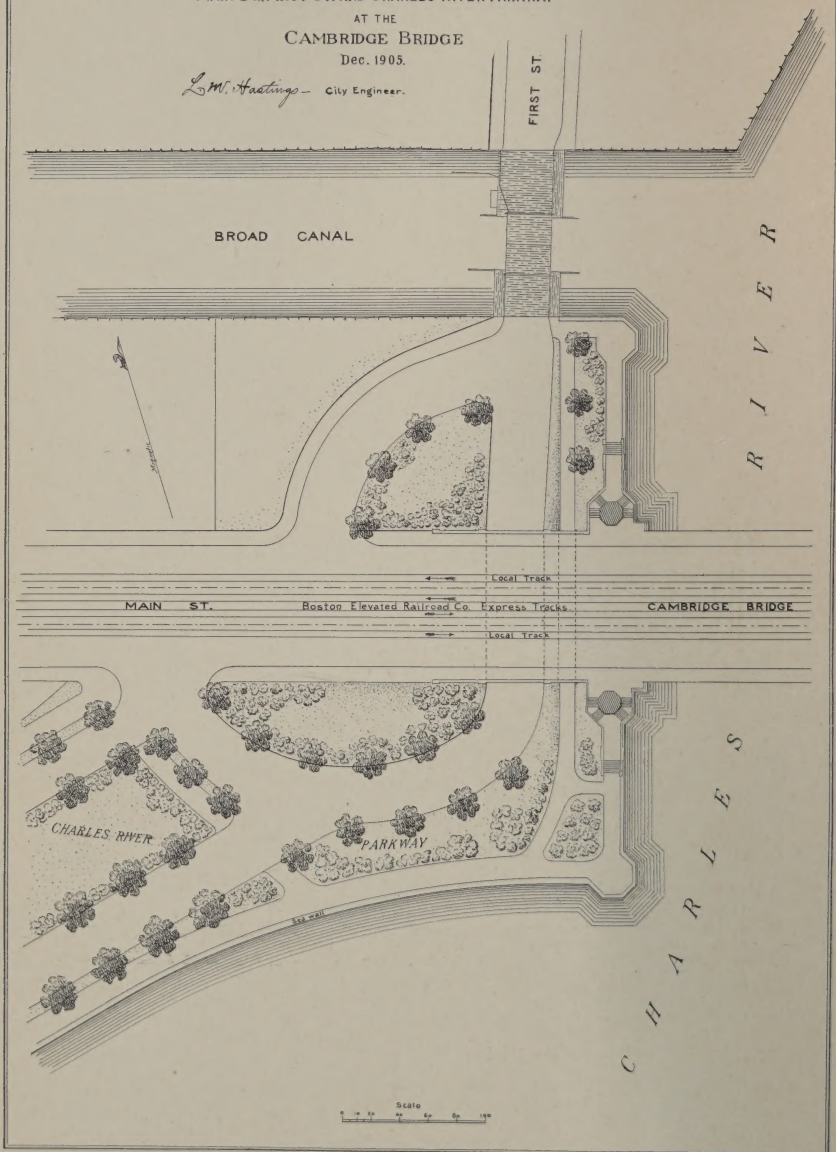


Proposed Connection of  
MAIN ST., FIRST ST. AND CHARLES RIVER PARKWAY

AT THE  
CAMBRIDGE BRIDGE

Dec. 1905.

*L. M. Hastings* - City Engineer.



Proposed Approach to New Cambridge Bridge

THIRTEENTH ANNUAL REPORT  
OF THE  
BOARD OF PARK COMMISSIONERS  
OF THE  
CITY OF CAMBRIDGE

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*To the Honorable, the City Council of the City of Cambridge:—*

GENTLEMEN:— We have the honor to herewith submit the thirteenth annual report of the Board of Park Commissioners, together with the twelfth annual report of the General Superintendent of Parks, as required by Section 4 of the Ordinance establishing a Park Department.

In reviewing the large amount of work accomplished during the past year we are pleased with the conspicuous showing that an anxious public has so long waited for: viz., the near approach of the completion of the river roads.

The laying out of new playgrounds in various parts of the City, when suggested by the different branches of the City Government, has had our consideration, but they might more readily materialize, if, with the order, came the necessary appropriation for labor and maintenance. Granted, that many small parks and breathing places, constructed and properly cared for throughout the City, would be alike appreciated and beneficial, it must be borne in mind that we must meet the demands that the coming appearance of our river front is sure to present. Particular attention should be given first to the completion of all that portion of the park system that is assured of permanent existence.

In anticipation of the beautiful aspect which the completed River Road and tideless water way will shortly present, it might be well to call your attention to a dangerous point, and also where a more symmetrical shore line should exist. Boylston Street is extended out into the river a considerable distance, and the bank on the upper side has been brought out to meet the bridge: while the jutting out of all this filling has so narrowed the stream that the converging of crew boats, sailing or motor boats and other pleasure craft may endanger not only the vessels, but the lives of those who use them.

This perhaps is, or will be, the most conspicuous point on the whole course of the river. Thousands and thousands of people from many miles distance cross the river here on their way to and from the Stadium, and the college crews have their quarters in the near vicinity; while vehicles of all descriptions convey their freight in either direction. We suggest

the cutting away of this superfluous projection, and the plans for the proposed new bridge be made in conformity with the necessary change in the conditions.

The result of our work we are pleased to present, and we earnestly ask your coöperation in the coming year's work in our endeavor to make the City's park system what it should be.

For a detailed account of the work of the year and also the expenditures, we refer you to the complete report of the General Superintendent, which accompanies the report of the Commissioners.

## FINANCIAL STATEMENT.

### PARK LOAN.

Amount of unused balance of 1904 appropriation reappropriated December 7, 1904 . . . . .	\$5,423 87
Amount appropriated March 25, 1905 . . . . .	35,000 00
Amount appropriated May 11, 1905:—	
East Cambridge Embankment . . . . .	\$15,000 00
Grading Rindge Field . . . . .	1,000 00
Shelter at Rindge Field . . . . .	4,000 00
	<hr/>
	20,000 00
	<hr/>
	\$60,423 87

### PARK MAINTENANCE.

#### *Brown Tail Moth Extermination.*

Amount appropriated January 14, 1905 . . . . .	\$4,000 00
Amount appropriated March 9, 1905 . . . . .	2,000 00
Amount appropriated April 5, 1905 . . . . .	1,000 00
Amount appropriated June 15, 1905 . . . . .	1,000 00
Amount appropriated September 1, 1905 . . . . .	2,000 00
Amount appropriated November 16, 1905 . . . . .	2,000 00
	<hr/>
	\$12,000 00

#### *Cambridge Field and Shelter.*

Amount appropriated March 25, 1905 . . . . .	6,000 00
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#### *Common, Squares and Public Grounds.*

Amount appropriated March 25, 1905 . . . . .	5,000 00
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#### *Shade Trees.*

Amount appropriated March 25, 1905 . . . . .	5,000 00
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#### *Sections A, B, D, F and Rindge Field.*

Amount appropriated March 25, 1905 . . . . .	3,500 00
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#### *Sections G and H.*

Amount appropriated March 25, 1905 . . . . .	3,500 00
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#### *Bath House.*

Amount appropriated March 25, 1905 . . . . .	\$2,100 00
Revenue from Bath House (above \$1,500.00) . . . . .	171 93
	<hr/>
	2,271 93

#### *General Account.*

Amount appropriated March 25, 1905 . . . . .	600 00
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During the year bills payable from Park Loans have been approved by the Board and certified to the Auditor to the total amount of \$50,467.17, as follows:—

## PARK LANDS AND CONSTRUCTION.

<i>River Parkway, Section A.</i>		
Construction account . . . . .	\$6,388 80	
<i>River Parkway, Section B.</i>		
Construction account . . . . .	3,309 47	
<i>River Parkway, Section C.</i>		
Construction account . . . . .	1,880 82	
<i>River Parkway, Section D.</i>		
Construction account . . . . .	13,314 96	
<i>River Parkway, Section F.</i>		
Construction account . . . . .	5,885 20	
<i>Nursery.</i>		
Construction account . . . . .	822 40	
<i>General Account.</i>		
Construction account . . . . .	4,655 51	
<i>Office Expenses.</i>		
Construction account . . . . .	962 17	
<i>Rindge Field.</i>		
Construction account . . . . .	846 84	
<i>East Cambridge Embankment.</i>		
Construction account . . . . .	12,401 00	
Amount expended . . . . .		\$50,467 17
Balance unexpended . . . . .		<u>9,956 70</u>

During the year bills payable from Park Maintenance have been approved by the Board and certified to the Auditor, as follows:—

	Amount expended.	Balance unexpended.
Brown Tail Moth Extermination . . . . .	\$11,324 05	\$675 95
Cambridge Field and Shelter . . . . .	5,999 54	46
Commons, Squares and Public Grounds . . . . .	4,999 70	30
Shade Trees . . . . .	4,999 23	77
Sections A, B, D, F and Rindge Field . . . . .	3,499 81	19
Sections G and H . . . . .	3,499 67	33
Bath House . . . . .	2,271 04	89
General Account . . . . .	598 80	1 20

A detailed classification of the expenditures will be found in the report of the General Superintendent.



Since the beginning of the work in 1893 there has been expended to date, of money raised under Park and Esplanade Loans, the sum of \$1,485,487.73.

The division is as follows:—

<i>River Parkway, Section A.</i>			
Construction account	.	.	\$161,331 32
Land account	.	.	9,416 83
			<hr/> \$170,748 15
<i>River Parkway, Section B.</i>			
Construction account	.	.	\$96,892 87 96,892 87
<i>River Parkway, Section C.</i>			
Construction account	.	.	\$77,342 00
Land account	.	.	31,701 08
			<hr/> 109,043 08
<i>River Parkway, Section D.</i>			
Construction account	.	.	\$110,749 63
Land account	.	.	95,047 25
			<hr/> 205,796 88
<i>River Parkway, Section E.</i>			
Construction account	.	.	\$935 72
Land account	.	.	60,110 00
			<hr/> 61,045 72
<i>River Parkway, Section F.</i>			
Construction account	.	.	\$62,353 58
Land account	.	.	67,491 62
			<hr/> 129,845 20
<i>River Parkway, Section G.</i>			
Construction account	.	.	\$120,669 41
Land account	.	.	86,824 82
			<hr/> 207,494 23
<i>River Parkway, Section H.</i>			
Construction account	.	.	\$13,135 30 13,135 30
<i>Cambridge Field.</i>			
Construction account	.	.	\$127,315 28
Land account	.	.	78,884 85
			<hr/> 206,200 13
<i>East Cambridge Embankment.</i>			
Construction account	.	.	\$100,299 88
Land account	.	.	45,231 40
			<hr/> 145,531 28
<i>General Account.</i>			
Construction account	.	.	\$52,485 80 52,485 80
<i>Rindge Field.</i>			
Construction account	.	.	\$11,993 22
Land account	.	.	31,461 85
			<hr/> 43,455 07
<i>Office Expenses.</i>			
Construction account	.	.	\$15,850 30 15,850 30

*Broadway Park.*

Construction account	.	.	.	.	.	.	.	.	11,635 27	11,635 27
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*Nursery.*

Construction account	.	.	.	.	.	.	.	.	8,509 94	8,509 94
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*Improvements at Rindge Field.*

Construction account	.	.	.	.	.	.	.	.	3,845 93	3,845 93
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*Hastings Square.*

Construction account	.	.	.	.	.	.	.	.	2,683 07	2,683 07
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*Baths and Lockers.*

Construction account	.	.	.	.	.	.	.	.	2,500 00	2,500 00
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*Winthrop Square.*

Construction account.	.	.	.	.	.	.	.	.	1,866 26	1,866 26
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*Fort Washington.*

Construction account	.	.	.	.	.	.	.	.	929 79	929 79
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*Washington Elm.*

Construction account	.	.	.	.	.	.	.	.	466 98	466 98
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*Porter Square.*

Construction account	.	.	.	.	.	.	.	.	20 87	20 87
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\$1,489,982 12

Less Park revenue for 1894 and 1896 merged into land and construction accounts	.	.	.	.	.	.	.	.		
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4,494 39

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\$1,485,487 73

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Of the whole amount of Park Loans expended to December 1, 1905, 34 per cent. has been for land and 66 per cent. for construction, as follows:—

Land account (less revenues)	.	.	.	.	.	.	.	.	\$501,675 31
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Construction account	.	.	.	.	.	.	.	.	983,812 42
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\$1,485,487 73

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Respectfully submitted,

ANDREW J. CONLIN,  
GEO. HOWLAND COX,  
JNO. E. DWYER, M. D.,  
*Park Commissioners.*

# REPORT OF THE GENERAL SUPERINTENDENT OF PARKS

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CAMBRIDGE, December 1, 1905.

*To the Board of Park Commissioners of the City of Cambridge:—*

GENTLEMEN:—I have the honor to present my third annual report as General Superintendent of Parks, covering the financial year of 1905.

## SECTION A.

*(Area 9.07 acres.)*

Section A extends from the south line of Main Street as widened for the approach to the new bridge, to the west line of the third street east of Massachusetts Avenue.

Seven Welsbach lights have been maintained here during the year.

The trees on this section are in good condition.

During the year the loam spaces, lawns and ribbon strips were subgraded.

Eight hundred and thirty-five loads of filling were delivered here.

The inner ribbon strip from Section B to West Boston Bridge has been graded and sodded. The back walk has been regraded with 2,775 cubic yards of free filling, surfaced with cinders and rolled. The two lower lawns have been subgraded for loam and shrubbery. Both driveways are ready for a finished grading of gravel or macadam.

The plan of the approach to Cambridge Bridge by L. M. Hastings, City Engineer, is shown in this report. This does away with any land taking at the corner of the Parkway and Main Street that was necessary by other schemes. It provides for a continuation of the inner drive of the present lay-out straight to Main Street, with only a slight change in grade, a rise of about two feet. The outer drive swings into the First Street subway, with a drop in grade of six feet in about 300. Most of the slope from the Main Street incline will be taken by the oval loam space between Main Street and the driveway and will be screened by trees and large beds of shrubbery.

The following material has been received here:—1,065.2 cubic yards ashes at a cost of \$266 30; 539.42 cubic yards loam at a cost of \$535.87.





River Parkway, Section B. Looking South from Harvard Bridge





Shrubbery Bed. River Parkway, Section B



## SECTION B.

*(Area 19.72 acres.)*

Section B extends from the west line of the third street east of Massachusetts Avenue to the west line of the fourth street west of the Avenue, but does not include Massachusetts Avenue.

The usual number of men have been constantly employed during the season caring for the lawns, trees, shrubs and planted spaces.

The trees and shrubbery are in fair condition but more shrubbery should be planted in the early spring.

The settees are in good condition and much used. I would recommend the placing of more here the coming season.

The driveway and walks are in good condition; 1,500 cubic yards of free filling were used to raise the back walk to grade.

The ribbon strips, on account of settlement, have been brought to grade and resodded.

I would again recommend that the property owners build up their land to grade, thus avoiding the ragged appearance it has at present.

Part of the lower lawn on this section has been brought to grade.

The catch basins have been cleaned.

The iron fence is in a good condition.

Twenty-six Welsbach lights have been maintained during the year.

The roadway, on either side of the third and fourth lawns, west of Massachusetts Avenue, should be resurfaced.

There remains to be built on this section 357 feet of sea wall in order to complete the proposed plan.

Ninety-one and three-tenths cubic yards of ashes have been received here at a cost of \$22.82.

## SECTION C.

*(Area 13.39 acres.)*

Section C extends from the west line of the fourth street west of Massachusetts Avenue to the east line of Brookline Street, but does not include the right of way of the Grand Junction Railroad.

No construction work has been done here during the year.

Two thousand eight hundred fifty-nine and sixty-six one hundredths cubic yards of filling has been received at a cost of \$476.61.

It is hoped that the bridge over the Boston & Albany Railroad will be built the coming year as some negotiations with the railroad officials have already been made.

With the railroad bridge built, the rest of the section should be completed at once. The grade of the bridge is nearly twenty feet higher than the present parkway, and large quantities of filling will be needed in the approach.

The finished plan calls for a beach from the end of the sea wall at Section B to Brookline Street. Large quantities of mud have already been dumped along the old bulkhead. I would recommend that more material be procured and the beach completed before the completion of the Charles River Basin, as it can be done much cheaper.

#### SECTION D.

*(Area 38.31 acres.)*

Section D extends from the west line of Brookline Street to the south line of River Street.

Twenty-nine Welsbach lights have been maintained. Eighteen on the driveway and eleven on the island, together with three arc lights on the beach during the bathing season.

The usual work has been done here during the season, two men having been constantly employed.

During the year large quantities of filling have been purchased at a very low cost and used for building the walks and widening the roadway.

The walks either side of the roadway, from Brookline Street to Magazine Street, which were in a poor condition, have been resurfaced with screened ashes and rolled to grade. The river walk, from the bath house to Pleasant Street, was completed, thus doing away with the dangerous foot bridge over the large marsh creek.

Pearl Street extension was brought up to finished grade, the roadway surfaced with gravel, the sidewalks built with cinders and the curbstone at the corner of Pearl Street and the Parkway raised to grade.

The trees and shrubbery have shown pleasing results and I would suggest that additional shrubbery be planted around the bath house.

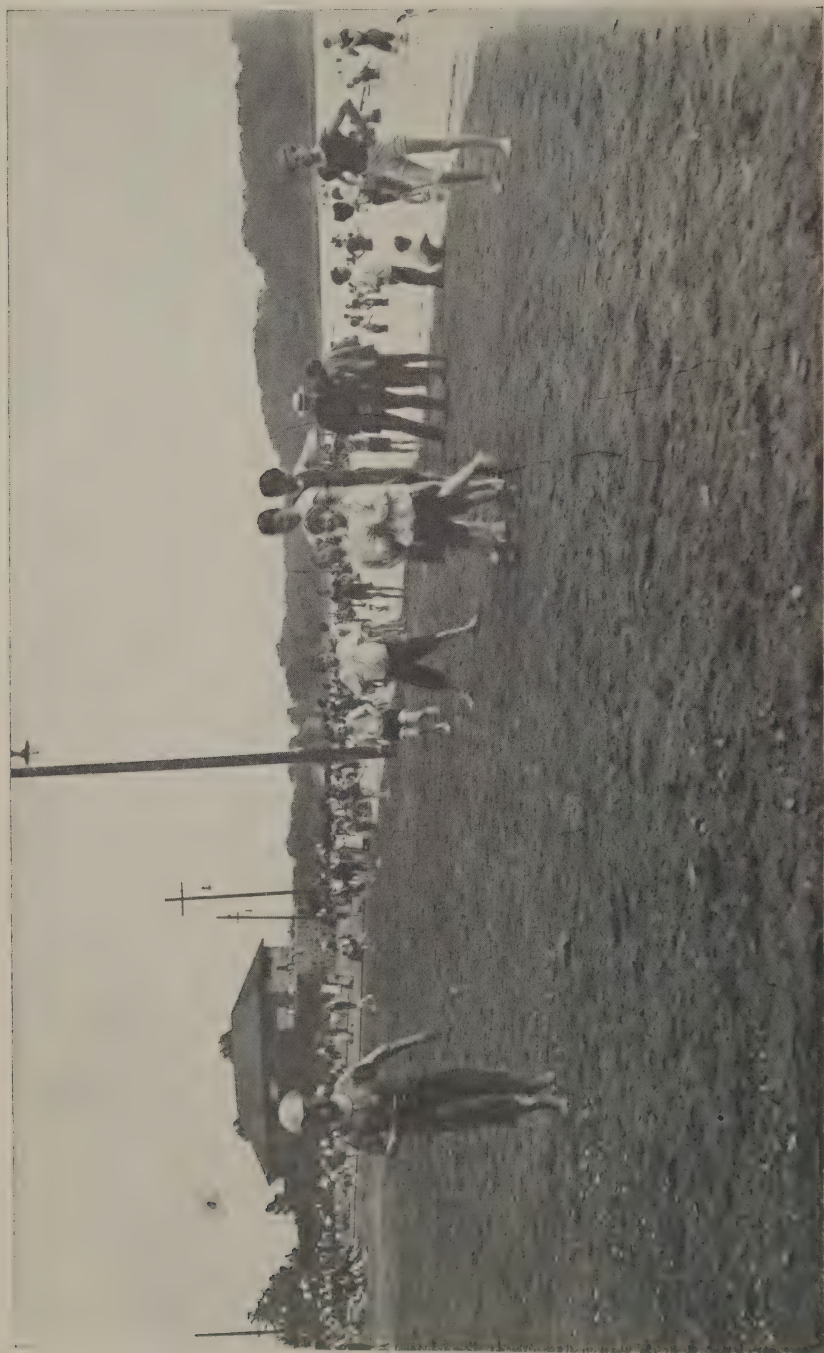
As mentioned in my report of last year the bathing beach, owing to the action of the tides at this point, still shows considerable mud which should be removed and the beach resurfaced with sand.

I hope this year to be able to utilize the land bounded by Pearl, Granite and Magazine Streets and Charles River Road for tennis courts. This can be done at a very small cost, by placing over the entire surface a coating of cinders and top surfacing the same with street scrapings.

Last year numerous requests were received from mothers and kindergarten teachers for a wading pool for the smaller children, but nothing







Bathing Beach, Captain's Island. Looking East



Bathing Beach, Captain's Island. Looking West



has been done in regard to this up to the present time. We trust this will be installed the coming season, in accordance with the plan submitted by Olmstead Brothers.

The ball grounds were in great demand during the season and in order to accommodate the growing demand for baseball permits I would suggest that the remainder of the field be graded.

The bath house was open from June 17th to September 15th. The usual number of attendants, with an additional life guard, were employed each day from 9 A. M. to 10 P. M. with the exception of four hours at low tide. The estimated number of bathers was 53,575 and the total receipts from towels, suits and lockers \$1,671.93. This is the largest amount derived from the bath house since 1901 and the second largest amount since the bath house was opened. The laundering has been done by Monk's Custom Laundry at a cost of \$1.00 per 100 pieces. Early in the spring thirty dressing rooms were built by extending the men's house to the women's, but even with this additional room there was a scarcity of accommodations, which shows that a larger and more complete bath house will be the only solution of this problem.

The following material has been received at this section this year:— 21,760.16 cubic yards ashes at a cost of \$5,440.04; 4,777.2 cubic yards filling at a cost of \$1,194.30; 45.9 cubic yards loam at a cost of \$9.18.

#### SECTION E.

*(Area 1.77 acres.)*

Section E extends from the north line of River Street to the south line of Western Avenue.

No construction work has been done here this year.

#### SECTION F.

*(Area 13.89 acres.)*

Section F extends from the north line of Western Avenue to the east line of Boylston Street.

The section has been kept in the usual good trim as required by its prominent location and popular use; the limited appropriations, however, have restricted the execution of any great amount of construction work being done.

Nine Welsbach lights have been maintained and more lights are needed.

The usual number of men have been employed caring for the road, walks, trees and shrubs.

The catch basins have been cleaned and put in good condition.



Considerable work has been done on the Parkway between De Wolfe Street and Western Avenue. The roadway from De Wolfe Street to Sands Street has been surfaced with gravel and rolled. The inner walk and ribbon strip was completed from Flag Street to 200 feet below Sands Street. Edgestone was set at the corner of Flag Street and Charles River Road.

The shrubbery on this section is in a poor condition and needs much new planting.

As yet nothing has been done with the two wharf properties, but it is hoped that the material may be used the coming year for shaping and perfecting the slope in the immediate vicinity.

The sea wall between Western Avenue and Stiles Street still remains to be built and should be given early attention so that the walks and roadway may be completed.

The planting space at the top of the beach, between Dunster and Plympton Streets, also between De Wolfe and Beaver Streets has been graded and is ready for spring planting.

The ribbon strips between Boylston and De Wolfe Streets have shown some settlement and require loam surfacing.

The iron fence east of Boylston Street is in good condition.

I would recommend that garden hydrants be installed between De Wolfe and Sands Streets for the benefit of the trees and ribbon strips.

I would suggest, that on account of the congested nature of the City at this section, a playground be provided as soon as possible, as the Park property suffers severely from vandalism, and immediate relief is necessary.

#### SECTION G.

*(Area 16.07 acres.)*

Section G extends from the west line of Boylston Street to the east line of the land of the Stillman Infirmary.

Twenty-six Welsbach lights have been maintained.

The usual number of men were employed caring for the roadway, walks, grass plots, trees and shrubs.

The iron fences at the top of the beach west of Boylston Street and also along Mt. Auburn Street are in good condition.

Your attention is again called to the condition of the beach along the entire section. That portion of the paved beach between Murray and Boylston Streets should be repaved as soon as possible.

The portion of the gravel beach between the Stillman Infirmary and the Gas Wharf should be resurfaced with gravel.





River Parkway, Section F. Looking North from Sands Street



During the early fall several men were employed cleaning out the dead wood and adding new shrubbery to this section.

Owing to settlement, the roads, walks and ribbon strips should be regraded, the curbing reset and the gutters relaid.

#### SECTION H.

*(Area 1.44 acres.)*

Section H extends from the east line of the land of the Stillman Infirmary to the Metropolitan Park taking at Gerry's landing.

During the season the trees and grass have been cared for as usual and the section is in very good condition.

The iron fence has been repaired and painted.

#### CAMBRIDGE FIELD.

*(Area 12.64 acres.)*

Considerable work has been done here during the season.

The usual number of men were employed.

Sixty-five and five-tenths cubic yards of loam were received at a cost of \$54.20, and used in building up the shrubbery beds and regrading settlements in the lawns.

The shrubbery beds have been thoroughly inspected and carefully cleaned and trimmed.

Considerable trouble was experienced with the trees, a number dying during the hot spell the first of the season. Fourteen dead ones were removed; but by treating with manure and watering well, the rest were revived.

The ball grounds were rolled and regraded, and are in a very fair condition. They were well patronized during the ball season. There is a steadily growing demand for base ball grounds in this part of the City. The demand for seats or bleachers is as urgent as ever and I hope that sufficient appropriation will be made so that we can build some seats on the ground this coming spring.

Sand courts have been enjoyed by the thousands of little children and I would again recommend some sort of a covering to protect them from the sun during the extremely hot weather.

During the winter season the field was flooded and skating enjoyed by a large number from all parts of our City. This skating field is patronized largely because the water is so shallow that safety is a

certainty. I would call attention to the poorly lighted condition of the field, the seven lights being insufficient, especially during the skating season.

The running track, which up to the past season has not been used to any great extent, sprang into prominence after the opening of the shower baths.

I have been beseiged with requests for band concerts and I hope the Commissioners will look favorably upon this matter.

It has already been shown that the establishing of a playground on this field has been of inestimable value to the people. Playgrounds should be more than mere pleasure grounds, and the benefits derived from them by our children would be increased by introducing into them a regular outdoor gymnasium, under proper physical training. The success of the Charles Bank gymnasium, an open air gymnasium of the City of Boston, should lead us to adopt the same system in our City. This can be established at a comparatively small expense. We have an excellent site for the construction of just such a gymnasium and I am sure it would be a step in the right direction. I hope the Commissioners will give this matter their earnest consideration as I know it to be a much needed want.

#### THE SHELTER.

The Shelter on the field has been renovated and is in a fair condition. The shower baths were opened for the first time July 15th and have been well patronized and thoroughly enjoyed. Considerable repairing had to be done before they were opened, however, and new apparatus added. A floor was laid in the locker room and benches built; a counter and shelves for holding and distributing soap and towels were placed just outside the locker room entrance.

The shower baths are open from 1 to 10 P.M. on Tuesday and Thursday for women and the rest of the week for men. One attendant is constantly employed. A charge of two cents for a piece of soap and a towel has been made and from this a revenue received amounting to \$32.06.

The following table shows the number of bathers from July 15th to November 30th:—

Men . . . . .	3,625
Women . . . . .	986
Boys . . . . .	5,900
Girls . . . . .	2,467
Total . . . . .	<hr/> 12,978

## RINDGE FIELD AND NURSERY.

*(Area 11.52 acres.)*

One man has been constantly employed here caring for the Nursery, and also the lawns of the Sleeper School.

The large lawn and walks in the front of the field were laid out and partially completed this fall. The field cannot be wholly completed until the schoolhouse at the corner of Rindge Avenue and Groveland Road is removed and I hope this will be done this coming year. A temporary walk was constructed across the lawn from Rindge Avenue parallel to the schoolhouse fence. A planting plan of the field was received from Olmstead Brothers and planting will be done in the early spring.

The rest of the unfinished field can be completed at a very small cost as the material for same is right on the ground.

Plans and specifications were made for a shelter and bids asked for. These were rejected, however, as none came within the appropriation of \$4,000. It is hoped that an additional appropriation may be obtained and the shelter built this coming year.

The swings, tilts and sand courts were in constant demand by the children during the summer season.

It is important that when the field is open that it should become a success, in order to induce respect from the people who will frequent the place.

Experience teaches that when such a ground is finished in a poor manner the public is very apt to abuse it, while if the finish is good and the arrangements ample and attractive, improved behavior follows. I would recommend the removal of the old wooden fence that now encloses the field and that a stone curbing be substituted.

The trees and plants at the Nursery are in good condition.

The following inventory gives an account of the stock on hand in the Nursery:—

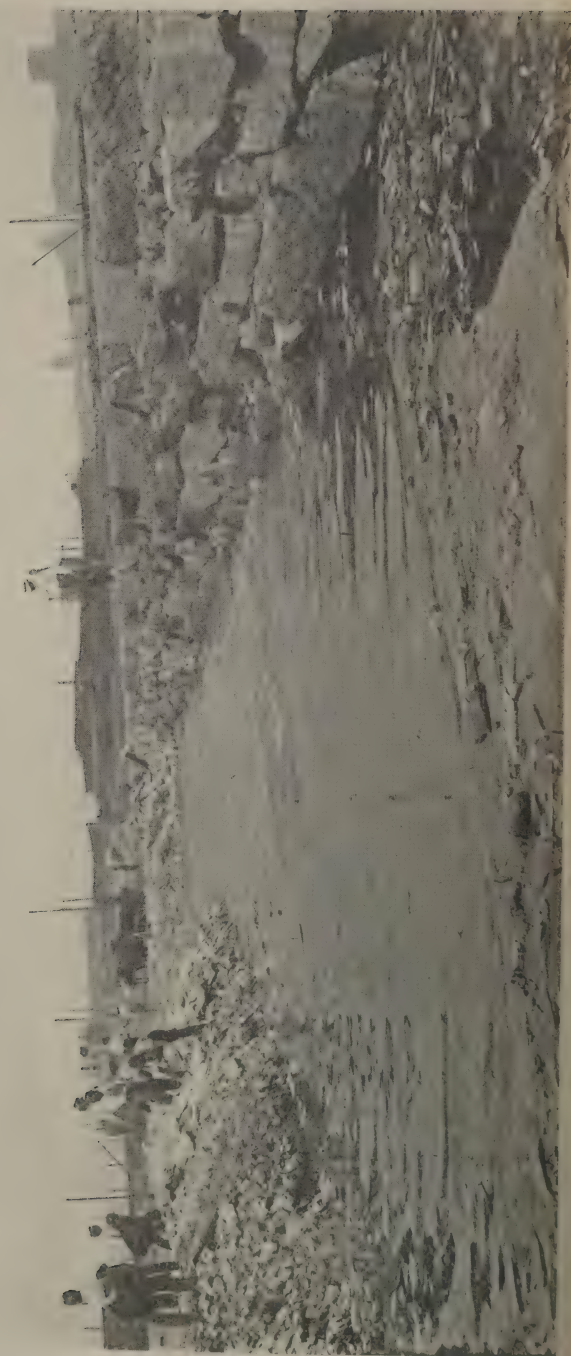
TREES.	
Acer platanoides . . . . .	26
Acer saccharum . . . . .	7
Acer saccharinum . . . . .	10
Fagus ferruginea . . . . .	10
Fraxinus Americana . . . . .	10
Platanus orientalis . . . . .	6
Populus Bolleana . . . . .	7
Populus fastigiata . . . . .	20
Quercus rubra . . . . .	236
Quercus macrocarpa . . . . .	113
Salix pentandra . . . . .	7
Salix Wisconsin . . . . .	4
Tilia Americana . . . . .	42
Ulmus Americana . . . . .	70



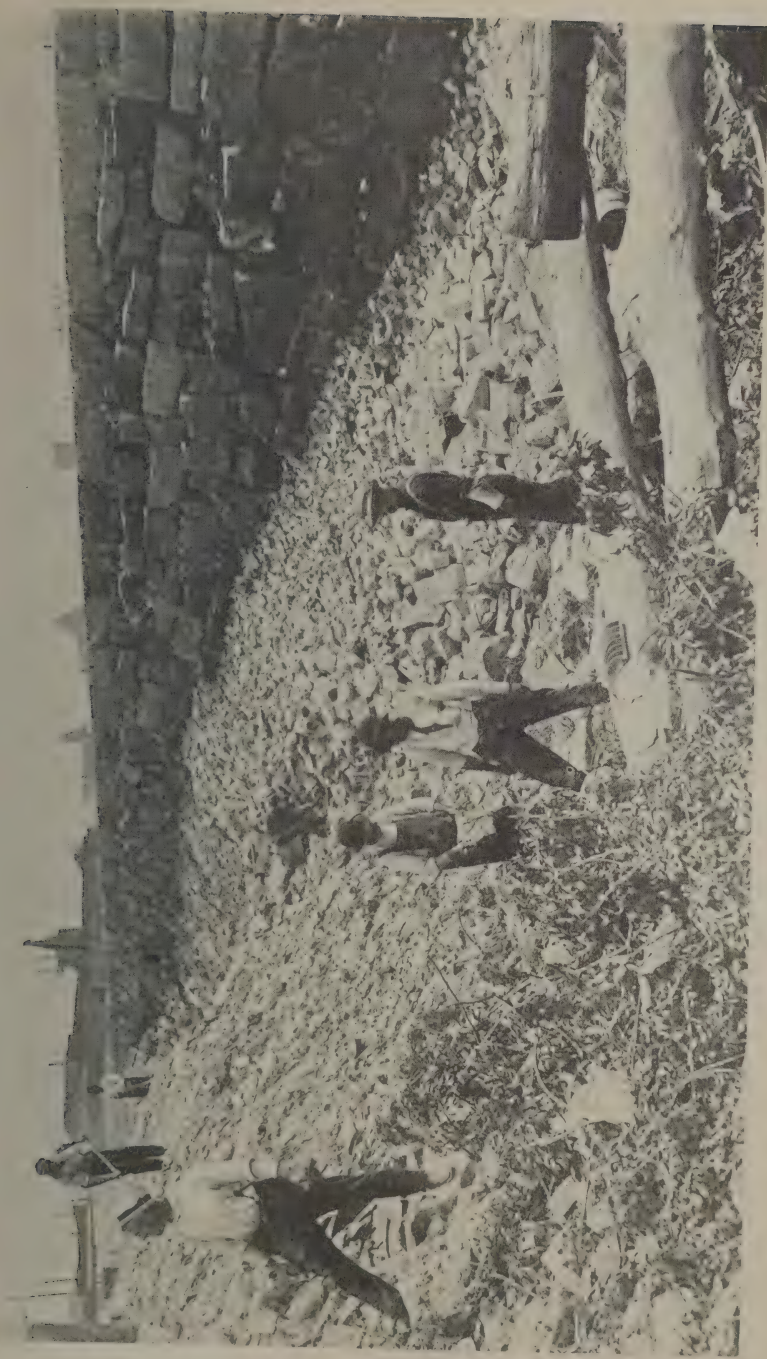
## SHRUBS.

<i>Amorpha fruticosa</i>	6
<i>Andromeda floribunda</i>	10
<i>Andromeda japonica</i>	3
<i>Aralia pentaphylla</i>	34
<i>Azalea amoena</i>	12
<i>Baccharis halimifolia</i>	20
<i>Buxus sempervirens</i>	20
<i>Calycanthus floridus</i>	21
<i>Caragana arborescens</i>	40
<i>Celastrus scandens</i>	30
<i>Cephalanthus occidentalis</i>	10
<i>Clethra alnifolia</i>	200
<i>Cornus alba</i>	13
" <i>circinata</i>	18
" <i>florida</i>	30
" <i>paniculata</i>	21
" <i>sericea</i>	100
" <i>siberica</i>	5
" <i>sanguinea</i>	51
<i>Crataegus oxycantha</i>	60
<i>Deutzia crenata</i>	12
<i>Deutzia gracilis</i>	6
<i>Diervilla rosea</i>	3
<i>Eleagnus longipes</i>	14
<i>Euonymus Americana</i>	2
<i>Euonymus radicans</i>	100
<i>Exochorda grandiflora</i>	30
<i>Forsythia fortunei</i>	100
<i>Forsythia viridissima</i>	70
<i>Hydrangea asplenifolia</i>	43
<i>Hydrangea paniculata</i>	1
<i>Ilex glabra</i>	15
<i>Ilex verticillata</i>	10
<i>Juniperus</i>	3
<i>Kalmia latifolia</i>	25
<i>Kerria japonica</i>	100
<i>Ligustrum ibota</i>	26
<i>Ligustrum vulgaris</i>	16
<i>Lonicera brachypoda</i>	50
" <i>halliana</i>	60
" <i>tatarica alba</i>	24
" <i>tatarica</i>	60
<i>Lycium barbarum</i>	10
<i>Mahonia aquifolia</i>	10
<i>Philadelphus coronarius</i>	20
<i>Periploca graeca</i>	10
<i>Rhamnus catharticus</i>	20
<i>Rhododendrons</i>	30
<i>Rhus aromatica</i>	12
" <i>canadensis</i>	35
" <i>typhina</i>	20
<i>Ribes aureum</i>	3
<i>Rosa blanda</i>	23
" <i>multiflora</i>	20





Placing Ballast at East Cambridge Embankment. High Tide



Placing Ballast at East Cambridge Embankment. Low Tide





Rosa nitida . . . . .	1
“ rugosa . . . . .	400
“ setigera . . . . .	8
“ wichuraiana . . . . .	3
Rubus odorata . . . . .	60
Spiræa Anthony Waterer . . . . .	46
“ billardii . . . . .	10
“ bumalda . . . . .	37
“ callosa . . . . .	4
“ pruniflora . . . . .	7
“ salicifolia . . . . .	32
“ Van Houttei . . . . .	60
“ tomentosa . . . . .	48
Staphylea trifolia . . . . .	30
Stephanandra flexuosa . . . . .	20
Symphoricarpos racemosus . . . . .	37
“ vulgaris . . . . .	40
Syringa vulgaris . . . . .	26
Tecoma radicans . . . . .	2
Tamarix africana . . . . .	12
Viburnum acerfolia . . . . .	39
“ dentatum . . . . .	11
“ lantana . . . . .	46
“ lentago . . . . .	2
“ opulis . . . . .	27
“ opulis nana . . . . .	5
“ tomentosa . . . . .	14
Xanthorrhiza apiifolia . . . . .	40

## EAST CAMBRIDGE EMBANKMENT.

(Area 8.35 acres.)

Considerable work has been done here during the season under very difficult circumstances, as this place has been extensively used by the City of Boston as a dumping ground for a number of years.

The work performed here during the year consisted largely of sub-grading roads, walks, shrubbery beds and tree pits.

A considerable portion of the unfilled section at the lower end has been filled without expense to the City.

Five hundred and fourteen and eight-tenths cubic yards of ballast was purchased during the season at a cost of \$772.20 and placed back of the sea wall, completing the ballasting needed at this section.

As the finished plan of this section has not been decided upon the filled portion was graded at a level sub-grade, allowing for a surface of loam or gravel, as may be determined later. The ten foot grass and tree strip on the east side of Commercial Avenue has been nearly completed and the trees planted.

As stated in my report of last year, there is a great demand for a bathing beach at this point.

I sincerely hope that a beach may be placed on the finished plan, as it is certainly a much needed want. It would add greatly to the unfinished appearance which now exists and would be to Cambridge what the Charlesbank is to Boston.

The development of this section is of great importance to Cambridge, both from a humanitarian and industrial standpoint; the people of a congested district will secure a river park, and manufacturers will find here the most favorable site for business purposes within the vicinity of Boston.

I am convinced that this will be finally considered one of the most successful parts of the entire park system, therefore, its development should not be neglected.

Commercial Avenue is now filled to grade to Lechmere Canal. The proposed bridge across the canal will complete the connection and open a thoroughfare from the lower parts of Cambridgeport and East Cambridge directly to the great freight stations of Charlestown.

In view of all these facts we hope that sufficient appropriation will be made to enable us to finish the embankment this year.

Thirty-four trees have been planted here this year, and 688.56 cubic yards of loam were used, at a cost of \$681.91.

### CAMBRIDGE COMMON

The usual number of men have been employed here during the season, caring for the trees, cutting the grass and keeping the walks shaped up. The ball grounds were treated in the early spring and were very well patronized by lovers of base-ball during the entire season. Goal posts were set in the fall and the field was used for football practice.

The fence around the Common has been repaired.

The fence around the monument was painted.

New axles were placed in the gun carriages and the cannon painted.

The coming season the walks should be resurfaced as they are subject to constant wear.

More settees are needed to accommodate the demand, as under present conditions the greatest good to the greatest number is not secured. A very small minority only of all the population who need this recreation space are permitted to enjoy it.

That a high state of cultivation of grass, trees and shrubs should be maintained in at least a part of the Common is very evident.

The grounds surrounding the Soldiers' Monument are not in keeping with the monument and I trust that next year we will be able to put them in better condition. The artistic treatment of the immediate grounds should be in harmony with the formal design of this monument. The

lawns of the private estates that surround the Common are of a character which call for equally careful cultivation of this reservation.

In bringing about this none of the old traditions of this sacred field need be violated. The treatment of the Common so as to preserve and emphasize its historical importance would be one of the tasks of the architect and one for which the advisory architects of this department are especially qualified. Native shrubs and trees arranged naturally should be used in the planting and if the flora of Massachusetts were used exclusively the effect would not be without much beauty and variety. The plan would have a unit of novelty and its educational advantages in affording a field for botanical study to our many school children who now have little opportunity to learn of the wealth of the woods and fields would be of much value.

Considerable work is now done each year in the way of repairs, much of this would be unnecessary if clearly defined plans for the treatment of the Common were adopted. Some trees should be removed and young trees planted in their places. Even if the work of reconstructing was not seriously entered upon for several years this incidental work of each season should be done with reference to a final plan.

### BROADWAY COMMON.

The usual care has been given to the walks, shrubbery beds, lawns and trees. Some settlements are noticeable and require building up with loam.

Additional shrubbery is needed.

The gravel walks should be bricked to conform with the others as numerous complaints have been made of their muddy condition in the wet season.

The iron fence enclosing the Common is in good condition, having been repaired and painted.

The shrubbery and trees have made good headway during the past year.

The flagstaff shows need of repairs and paint.

I would again call attention to the urgent demands for a simple outdoor gymnasium and sand courts, both of which are needed in this vicinity on account of the number of schools in close proximity and hope that something of the kind may be installed the coming spring.

It would be well to set off a section of the Common as a playground for children of the neighborhood and thus save the shrubbery from being trampled upon.

If this plan is carried out this place will be a very useful as well as an attractive piece of public property.

## FORT WASHINGTON.

The usual care has been taken of the old fort.

The shrubbery is doing very well and the lawns and walks are in good condition.

The guns and iron fence have been painted.

The flagstaff should be repainted.

## WASHINGTON ELM.

The usual care has been taken of this grand old tree this year. At present it is in a very good condition considering its age, and with proper care and good nourishment this interesting elm may continue to bear foliage for many years.

The leaves indicate considerable life on account of the fresh supply of plant food that has been added the past season.

A limb was removed this year and pieces of this were distributed to all who applied at the office.

The wounds also have been tarred and screened as suggested by Professor Sargent of the Harvard Arboretum.

An iron fence has been placed around the tree as a protection from souvenir hunters.

Some bulbs were placed in the loam space in front of the tree this fall which it is hoped will add to the beauty of the surroundings another season.

## WINTHROP SQUARE.

During the season the usual care has been given to the trees, shrubbery, grass plots and walks.

The fence is in fair condition.

Considerable loam is necessary in the early spring for surfacing the turf-covered spaces and building up the shrubbery beds.

The beds need more shrubbery.

The walks require shaping up, and resurfacing with stone dust.

Two of the largest elms were partially destroyed during the heavy storms of the winter but have been treated since and are now in fair condition.

## HASTINGS SQUARE.

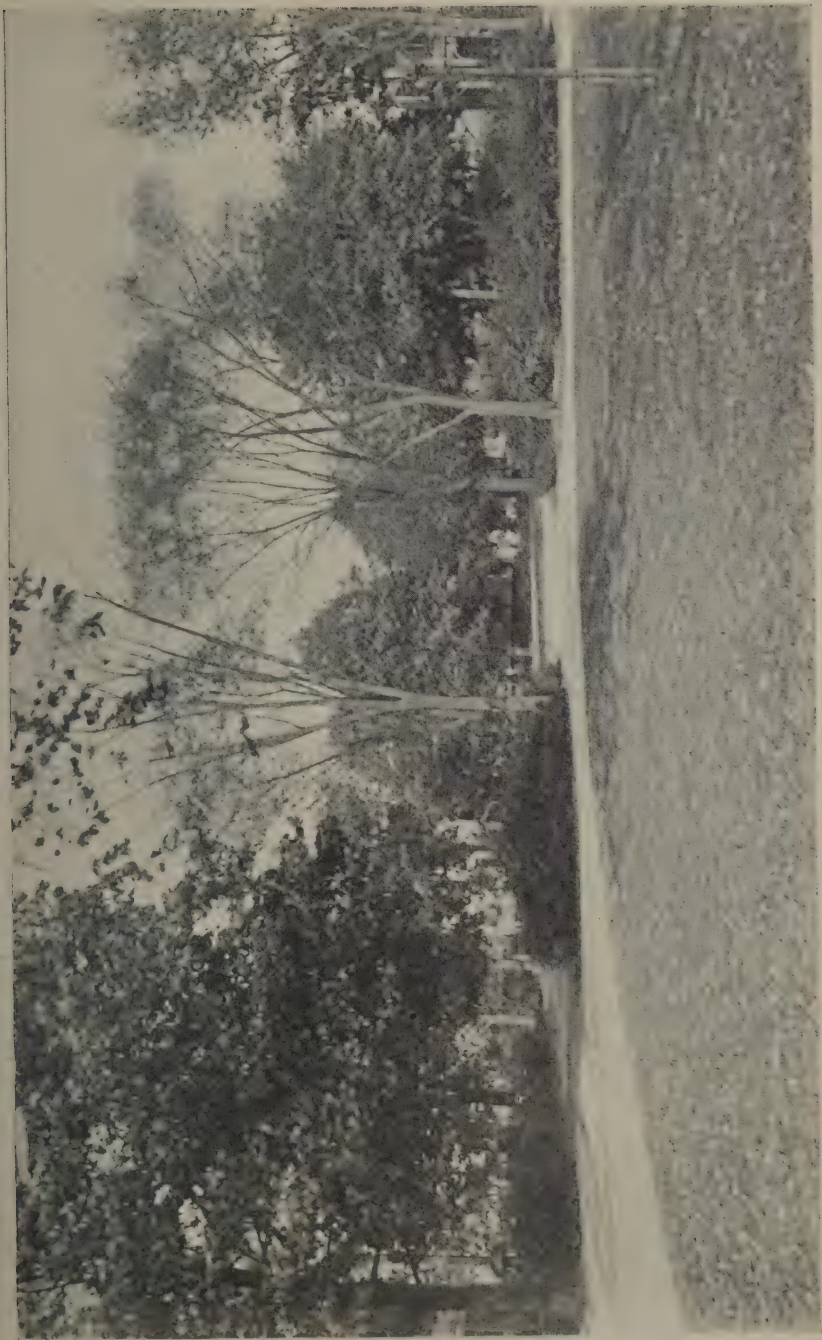
The usual attention has been given to the care of the trees, shrubbery, grass plots and walks.

Considerable loam is necessary for building up beds and shaping up the turf-covered spaces.

The walks should be resurfaced.

Again I would call attention to the numerous requests made for lights and settees.





Hastings Square





## DANA SQUARE.

The usual attention has been given to the trees and shrubbery.

New shrubbery was added and the turf covered spaces were turned over and seeded.

The walks were shaped up and the fence surrounding the square repaired and painted.

## PUBLIC SQUARES.

Again I am obliged to call attention to the poor condition of the public squares of the City.

That they are sadly neglected every observing citizen knows and these should receive more thought and consideration in helping to build up and beautify our park system.

Kendall Square, which is within the approach to our new Cambridge Bridge should receive immediate attention, as the bridge will be open for travel in the early summer. This Square could be made attractive by enclosing a part of the triangle with durable coping, filling in the same with loam and sod. This would not encroach on the width of the roadway and would be a great improvement over the present appearance.

I would also suggest that the following named Squares be treated in a like manner: Kelley, Lechmere, Mechanic and Porter.

## SCHOOLHOUSE GROUNDS.

Very little work has been done to improve the condition of the schoolhouse grounds during the past year, owing to the lack of appropriation for this work.

The grounds around the Manual Training, High and Latin Schools and Public Library have received the usual care and attention, such as cutting the grass, caring for shrubbery and trees. There are several settlements noticeable on the Cambridge Street side of the Library which should be built up in the early spring.

During the winter a hockey rink was built in the space between the High and Latin Schools and was very much enjoyed by the hockey teams of the two schools.

In the spring a fifteen-lap running track and tennis court were built on the grounds of the Manual Training School, which were much appreciated by the scholars. In connection with this, twelve cubic yards of loam were used at a cost of \$9.60.

During the spring the shrubbery beds were thoroughly overhauled,

loam was added and the dead wood removed, thus making the grounds more attractive than before.

The walks were shaped up and rolled and are in good condition.

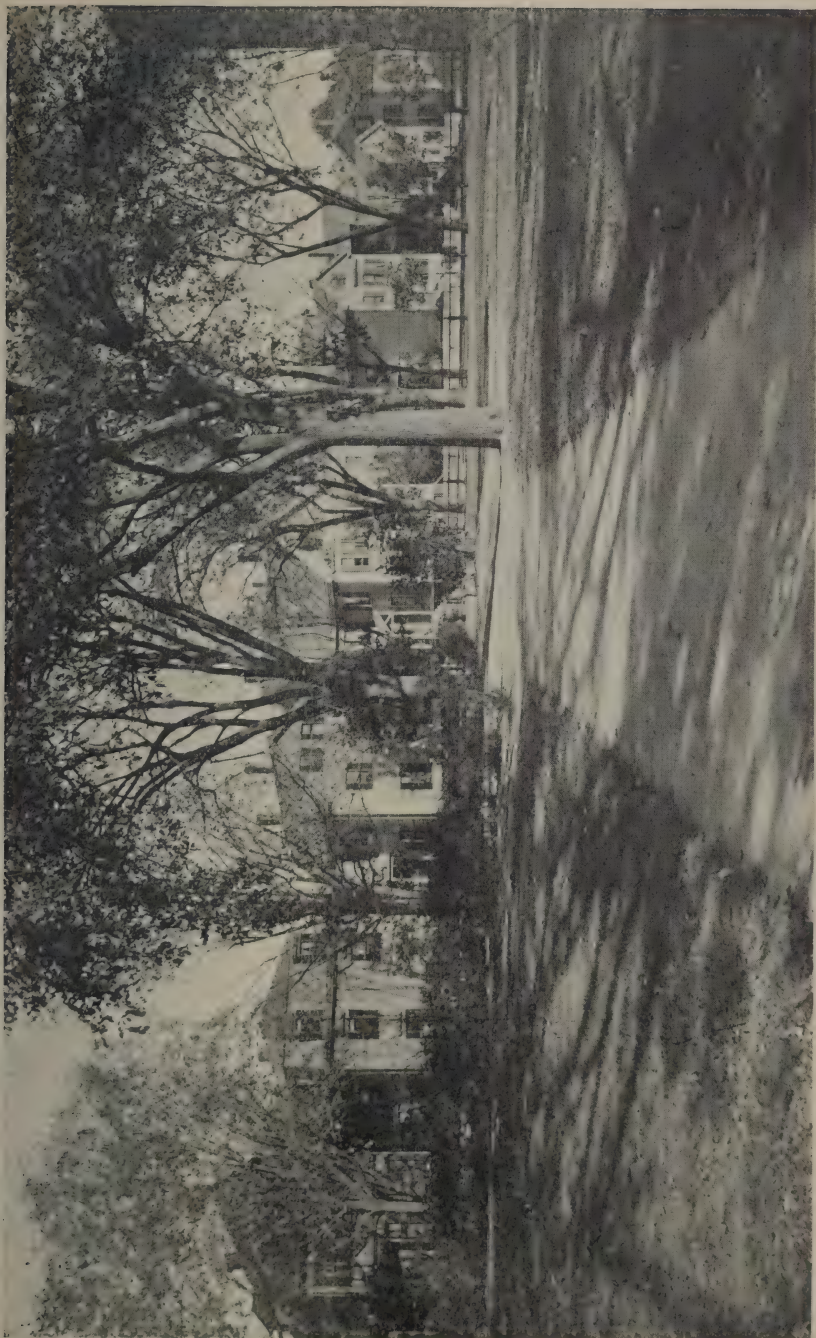
There are few schoolhouse lots in our City so contracted that it would not be possible to establish in them school gardens. In these gardens a few carefully labeled shrubs and a tree or two would not only exert a softening and civilized influence upon the school children, but might be made to play an important part in the educational system of our City.

The youngest schoolboy is old enough to find the study of school gardening the most absorbing of all his occupations. Here an early love of nature may be implanted, which will make lasting impression upon his future life as a citizen.

The problem of park development seems to include not only the preparation of parks for the people, but also in some measure at least the preparation of the people for the parks.

Below will be found a list of the school yards, showing briefly their condition and the probable cost of needed improvement:—

School.	Location.	Yard area in sq. feet.	Condition of Yard.	Needed Improvement.	Probable Cost.
Agassiz .....	Sacramento St....	15,337	Poor.....	Graded, iron fence.....	\$1,000
Boardman...	Windsor St.....	5,528	Fair.....	No change .....	.....
Corlett.....	Holworthy St....	8,800	Fair.....	No change .....	.....
Cushing.....	Cushing St.....	12,897	Fair.....	Repair fence .....	100
Ellis.....	Norris St.....	.....	Poor.....	Lawn, planting .....	300
Felton.....	Amory St.....	11,760	Good.....	Planting, iron fence .....	200
Fletcher.....	Elm St.....	.....	Excellent ..	No change .....	.....
Gannett.....	Jefferson St....	12,209	Good.....	Repair fence .....	25
Gore.....	Gore St.....	5,364	Fair.....	Repair brick yard.....	25
Harvard.....	Inman St.....	12,030	Fair.....	No change .....	.....
High.....	Broadway.....	68,094	Excellent ..	No change .....	.....
Holmes.....	Hilliard St.....	8,894	Fair.....	Graded.....	200
Houghton...	Putnam Ave.....	.....	Excellent...	No change .....	.....
Kelley.....	Willow St.....	.....	Excellent...	No change .....	.....
Lassell.....	Charles St.....	6,992	Poor.....	Graded.....	100
Latin.....	Trowbridge St...	.....	Excellent...	No change .....	.....
Lowell.....	Lowell St.....	9,108	Fair.....	Grade front.....	50
Merrill.....	Fayette St.....	32,188	Poor.....	Graded, planting, fence...	200
Morse.....	Allston St.....	15,420	Excellent...	No change .....	.....
Otis.....	Otis St.....	5,190	Poor.....	Graded, planting, remove fence.	200
Parker.....	Broadway.....	8,024	Very poor...	Graded, planting.....	400
Peabody.....	Linnaean St.....	17,663	Excellent ..	No change .....	.....
Putnam.....	Fourth St.....	10,575	Poor.....	Graded, iron fence.....	400
Reed.....	Reed St.....	9,915	Very poor...	Graded, planting .....	100
Riverside...	Putnam Ave.....	7,803	Poor.....	Graded.....	200
R. M. T. S....	Irving St.....	.....	Fair.....	Pave roadway.....	.....
Russell.....	Larch St.....	25,728	Fair.....	Graded, retaining wall.....	400
Shepard.....	Mass Ave.....	9,640	Fair.....	Lawn, walks, planting .....	300
Sleeper.....	Dudley St.....	15,412	Excellent...	No change .....	.....
Tarbell.....	Grigg St.....	16,705	Very poor...	Graded.....	600
Taylor.....	Charles St.....	17,058	Excellent ..	No change .....	.....
Thorndike...	Thorndike St....	2,637	Fair.....	Planting.....	50
Washington.	Cambridge St...	.....	Good.....	Graded.....	100
Webster.....	Upton St.....	21,339	Good.....	No change .....	.....
Willard.....	Niagara St.....	15,543	Fair.....	Graded, planting, iron fence ...	500
Wyman.....	Rindge Ave.....	12,001	.....	No change, school to be abandoned	.....
Wellington..	Columbia St.....	26,011	Good.....	Iron fence.....	200
Total .....					\$5,650



Dana Square







## SHADE TREES.

During the year 144.5 cubic yards of loam have been received at a cost of \$115.16, and 82 cubic yards at a cost of \$73.80. This has been used in the planting of new trees.

Work upon the public shade trees has proceeded slowly throughout the year, because of the inadequate means at the disposal of the Department. In my report of last year the caring of the trees was discussed and many necessary features pointed out.

Our citizens rejoice in the large amount of foliage which screens the City from the sun and makes the streets look beautiful, but a critical examination reveals the fact that the City is going backward in the matter of tree culture, and if the tendency which has been growing for a number of years of neglecting the trees continues, in a short time Cambridge, noted for being a City of beautiful trees, may be included in the list of "nearly barren cities." It is true that we have planted more trees than have been removed, but this fact is not the whole story. The work of destruction from many causes is going on, and decay is no less sure because silent and slow.

In order to have healthy trees extra care must be taken of them. When they show a lack of vigor the cause should be ascertained and if possible remedied.

There still remains a number of trees that require the removing of dead limbs; also a number of dead ones that should be removed this year. Close attention should be given to the care of some of our largest and best shade trees and considerable trimming is necessary the coming season.

A great many of the young trees are exceedingly backward in growth, owing to insufficient nourishment, and I would recommend a mixture of fresh loam, stable manure and street scrapings as a fertilizer to improve the growth of the same. It would be well to have a space cut out, where possible, around each tree large enough to catch surface water, instead of allowing the water to run into the gutter, which is a great drawback to the life and vigor of trees within the City proper.

The following tables show the amount of work done this year:—

529 trees planted, as follows:—

<i>Acer platanoides</i>	.	.	106
<i>Acer saccharum</i>	.	.	58
<i>Quercus rubra</i>	.	.	213
<i>Ulmus Americana</i>	.	.	152

134 trees removed, as follows:—

<i>Acer platanoides</i>	.	.	2
<i>Acer saccharum</i>	.	.	26
<i>Aesculus hippocastanum</i>	.		17
<i>Fraxinus Americana</i>	.		1
<i>Platanus occidentalis</i>	.		13
<i>Populus candicans</i>	.	.	3
<i>Salix</i>	.	.	7
<i>Tilia Americana</i>	.	.	3
<i>Ulmus Americana</i>	.	.	58
<i>Ulmus campestris</i>	.	.	4

262 trees trimmed.

356 new wire guards.

211 wire guards repaired.

26 heads removed.

## NUMBER AND KIND OF TREES PLANTED.

STREET.	Acer platanoides.	Acer saccharum.	Quercus rubra.	Ulmus Americana.
Appleton .....		1		
Avon Hill .....	2			
Brattle .....	2			
Broadway .....	1			
Cambridge .....		2		
Cedar .....				2
Charles .....				31
East Cambridge Embankment .....			42	
Eighth .....	2			
Eustis .....				30
Fayerweather .....	31			
Fayette .....				8
Fifth .....				4
Fourth .....				1
Frank .....	5			
Franklin .....	1			
Greenough Avenue .....				1
Harding .....			28	
Harvard .....	2			
Henry .....	1			
Highland Avenue .....				21
Hunting .....			13	
Huron Avenue .....	1			21
Jefferson .....			15	
Leonard Avenue .....		24		
Lexington Avenue .....	3			
Marion .....			14	
Ninth .....	1			
Norfolk .....				1
Oak Circle .....			21	
Oxford .....				2
Park Avenue .....				3
Pearl .....	30			
Pleasant .....				1
Porter .....			27	
Reservoir .....		6		
Rockingham .....	2			
Sacramento .....				19
Saville .....			3	
Sections A and B .....		24		
Section F .....			29	
Sixth .....	1			2
Third .....	4			
Walden .....				1
Warland .....	12			
Warren .....			21	
Winsor .....				2
Wyman .....	3			
Yorktown .....	2	1		
	106	58	213	152

## TREE PESTS.

A great amount of work has been accomplished this year in exterminating the brown-tail and gypsy moths. Eleven thousand three hundred and forty-nine trees have been cleaned since December 1, 1904, and 326 bushels of nests removed. Each bushel contains about 1,560 nests and each nest 400 moths, so it is safe to say that at least 203,424,000 moths have been destroyed.

During the winter months a large number of men were constantly employed removing the nests of the brown-tail moth from the branches of the trees and treating the nests of the gypsy moth with creosote. Not only was this work done on the street trees, but also on private property.

As in former years, a charge of 25 cents per hour for each man employed was made for work on private property and bills to the amount of \$2,754.94 were sent out, and of this amount \$1,336.65 was paid.

During the summer months a small force of men were employed spraying the trees in the more infested district. As soon as the foliage left the trees this fall a large force of men was started upon a systematic cleaning of first the street trees and then the private property through the entire city. This force will be kept at work until all the trees are thoroughly cleaned.

The charge for this work the coming year will be placed on the tax bill instead of a separate bill as heretofore.

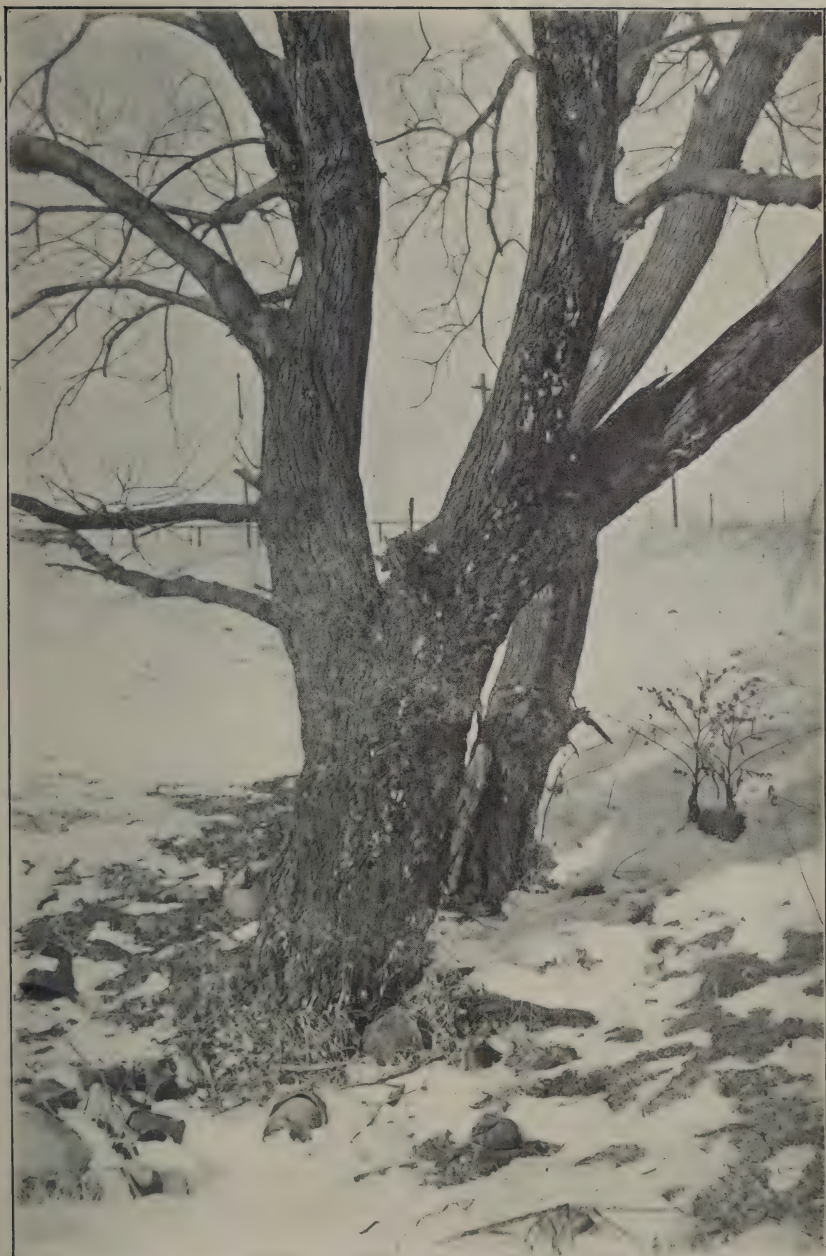
## THE GYPSY AND BROWN-TAIL MOTHS.

## THE GYPSY MOTH.

As far back as authentic records exist, the gypsy moth has been a destructive insect pest in Europe; at times increasing enormously and disastrously, then for other periods decreasing, only to increase again and renew its extensive ravages. At the present time it is most numerous and destructive in southern Russia.

Up to the year 1868 the gypsy moth was not known to exist anywhere within the western hemisphere. In that year the insect was brought from Europe by an experimenter to Medford, Mass. Soon escaping, it spread into many cities and towns of eastern Massachusetts, and, increasing enormously, became in 1890 so serious a pest that the Commonwealth began exterminative work against it. This was continued for ten years. By 1900 the State work had so reduced the moth that it was doing little or no serious damage, and had, indeed, ceased to be generally noticed, having been exterminated in many places. The





Trees in Vicinity of Huron Avenue, showing Gypsy Moth Nests on Bark





Commonwealth then abandoned its operations against the insect; whereupon it rapidly gained headway, and soon became again a formidable menace. Today, in many localities, the gypsy moth occurs in enormous numbers, as it did in 1890, but it is found over a much larger territory than it occupied at that time.

### *The Damage Caused by the Gypsy Moth.*

The gypsy moth caterpillar will attack all fruit, shade and woodland trees. It shows a preference for the apple, white oak, red oak, willow and elm. It will devour on occasion nearly every useful grass, plant, flower, shrub, vine, bush, garden or field crop that grows in Massachusetts.

The caterpillar kills both deciduous and coniferous trees. Woodlands assailed by it in formidable numbers are striped bare, as in winter, and many trees are killed. While several consecutive strippings are usually necessary to cause the death of a healthy deciduous tree, one thorough stripping will kill the white pine and other coniferous trees. Where the gypsy moth abounds in residential districts, it not only eats nearly everything green, but it swarms, in caterpillar form, upon houses, walks and verandas and often enters dwellings. In residential districts most heavily infested by the moth, real estate tends to rapid depreciation, so that it sometimes becomes a matter of difficulty to rent or sell property.

### *Life History.*

The gypsy moth, like all insects of its class, exists under four different forms during the year.

*The Egg.* — The eggs of the gypsy moth are laid in July and August in a yellowish, hair-covered mass, averaging about one and one-half inches long and about three-fourths of an inch wide. To the eye the egg mass resembles a small, tightly stuffed, oval, buff-colored cushion. During winter the color often fades to a dingy white. In this mass, the eggs, to the average number of about five hundred, are closely packed with yellowish hair from the body of the female moth. An individual egg is scarcely as large as a pinhead, salmon-colored when first laid, but turning dark in the course of a few weeks.

*The Caterpillar or Larva.* — The eggs hatch about May 1, and each mass or "cluster" yields a swarm of small caterpillars, the bulk of which become fully grown by midsummer. Gypsy moth caterpillars of any age are decidedly hairy. The head of the caterpillar is large in proportion to its body, this being especially noticeable when it is young.

The mature caterpillar has a dusky or sooty-colored body. Along the back, counting from the head, which is marked with yellow, is a

double row of blue spots followed by a double row of red spots. This double row of spots almost invariably may be seen very distinctly on the back of a gypsy moth caterpillar which has attained a length of one inch and a half or more. There are five pairs of blue spots and six pairs of red spots. No other New England larva has this double row of blue and red spots along its back. Until the gypsy moth caterpillar grows to the length of an inch and a half, however, it does not always show very distinctly these pairs of spots. The mature gypsy moth caterpillar not infrequently attains a length of three inches.

*The Pupa.* — When fully grown, usually in July, the caterpillar spins a few threads of silk as a supporting framework, casts its skin and changes into a pupa, or, as it is sometimes called, a chrysalis. The pupa is dark reddish or chocolate in color and very thinly sprinkled with light reddish hairs. Unfortunately it resembles the pupæ of certain other moths found in Massachusetts, and cannot, unless by experts, be identified at a glance. The thinly sprinkled, light reddish hairs are, however, characteristic.

*The Moth.* — From July 15 to August 15 the winged moths emerge from the pupæ, the date varying according to the season and time of pupation. The male moth is brownish-yellow, varying to greenish-brown in color, has a slender body and expands about one and one-half inches. It flies actively by day, with a peculiar zigzag flight.

The female moth is nearly white, with numerous small black markings, heavy bodied and sluggish, and expands about two inches. The female does not fly, otherwise the spread of the gypsy moth would be most rapid. After mating, the moths live but a short time. The female dies after despositing her egg mass. The winged moths take no food. All damage to foliage is caused by the caterpillars.

#### *Distribution.*

The gypsy moth spreads chiefly during the caterpillar stage. While the caterpillars do not crawl very far from where they hatch, except when there is a scarcity of food, they have the habit, when small and young, of spinning down on their silken threads from trees, and, falling on vehicles, are then carried from place to place. Electric cars, pleasure and business vehicles, bicycles and automobiles are common means of thus transporting the gypsy moth. The special attention of all those upon whom gypsy moth suppression devolves is therefore directed to the necessity of keeping the neighborhoods of travelled highways free from the insect. The caterpillars often crawl upon vehicles standing in an infested spot, and by this means also are carried from one place to another. The

egg clusters of the gypsy moth may also be transported upon any of the numerous objects on which they are laid. Freight cars that have stood near infested foliage for a period long enough for the laying of gypsy moth eggs upon them may even thus transport the pest.

While the foregoing list is accurate at this writing (September 1, 1905), there can be but little doubt that the gypsy moth occurs over a considerably larger area. From a knowledge of the existence of large colonies of the moth on main lines of travel in eastern Massachusetts, as well as of the means by which the moth spreads, it seems probable that the insect will ultimately be found at least throughout the eastern part of the State.

*Where to look for the Gypsy Moth.*

*The Egg.*—From August to May the egg masses of the gypsy moth may be found in places near which the moth emerged from the pupa case. In laying, the female moth chooses tree trunks, the under sides of limbs, sheltered crotches and holes in trees, hollow trees, crevices in or under rough bark, etc. The egg clusters are also found on shrubbery, buildings, scattered and heaped rubbish, barrels, boxes and similar objects standing out of doors, wood piles, stone piles, fences, walls, boulders and the like. Gypsy moth egg clusters have been found upon an immense variety of objects, and occasionally may be seen in almost any situation that is not too far from vegetation. The tendency is to deposit the eggs on the lower or inner surface of an object. The moths disregard all rules when they swarm in a place, and their egg clusters may then be found plentifully in sight as well as out, and in all sorts of places, even within buildings.

*The Caterpillar.*—From May to August the caterpillars may be found in various stages of growth, diminishing in numbers rapidly after July 15. In the spring the small caterpillars should be looked for on the foliage, feeding principally on the under side of the leaf. As the caterpillars grow, they molt or cast their skin several times, and these molted skins are characteristic signs of the presence of the moth. As the caterpillars acquire size, they commence to feed by night, and during the day seek shelter, generally in clusters, on the shady side of tree trunks, beneath large limbs, under rough or loose bark, in holes in trees, under fence rails, in walls, stone heaps, rubbish piles, in short in any accessible place offering shelter from the sun and the birds.

*The Pupa.*—Gypsy moth pupæ are most abundant during the latter half of July. They are to be found in the same situations as are chosen for depositing the egg clusters, and not infrequently, also, in the foliage of trees and shrubs.



*The Moth.*—The peculiar zigzag flight of the male moth has already been noted. The large, white, conspicuous female moths sit or crawl on tree trunks, etc., near their pupa cases. In July (chiefly the latter half) and through August these females may be found busily engaged in laying their eggs.

*Danger Signs.*—The bristly, cast-off molt skins of the gypsy moth caterpillars, often with the head cases attached, may frequently be found in the situations chosen for the eggs and pupæ. They are often massed in bunches, and are very commonly associated with empty gypsy moth pupa cases or hatched or unhatched gypsy moth egg clusters.

Gypsy moth molt skins and empty pupa cases are resistant to weather and decay, and may be found at any season of the year. The presence in any locality of such molt skin, empty pupa case or hatched egg cluster of the gypsy moth indicates the probable presence near by of the living moth in some form, and therefore is a sign of danger not to be disregarded. The hatched-out egg masses of a previous year often remain intact in sheltered places, and thus give a clue to the presence of the insect.

#### THE BROWN-TAIL MOTH.

This insect, like the gypsy moth, a common European pest of fruit and shade trees, has been an object of interest to gardeners from the earliest times. Throughout Europe it is known as the "common caterpillar," and accounts of its habits and periodical ravages are to be found in nearly all European works on entomology and horticulture. It found its way accidentally to Somerville, Mass., in the early nineties, probably in a shipment of roses from Holland, multiplied, spread, and is now generally disseminated over eastern New England.

#### *Damage by the Brown-tail Moth.*

While at first a pest of the pear and other fruit trees, the brown tail moth has now adapted itself to feeding on various species of forest trees, notably the oaks. In the spring, as soon as the buds unfold, the young caterpillars begin to feed, and where numerous completely strip even large trees. When the food supply gives out, they swarm forth along fences, walks, etc., in search of foliage.

The damage by the caterpillars to the fruit trees is only a part of the harm wrought by them. Whenever these insects come in contact with human flesh, they produce a most severe and painful nettling. This is due apparently not to any poisonous material in the hairs, but rather to the finely barbed and brittle hairs themselves. So severe is this affec-





Trees in the Vicinity of Mt. Auburn Street, showing Brown-tail Moth Nests



tion that in many cases people have been made seriously ill by it. The best remedy for it is the liberal use of cooling lotions, or what is more satisfactory, even if less pleasant, the free use of common vaseline.

Where the brown-tail moth caterpillar exists in great numbers it at times gathers upon houses and even enters them, causing extreme annoyance. Like the gypsy moth, the brown-tail moth, where it abounds, depreciates the value of residential property.

### *Life History.*

*The Egg.*—The egg mass of the brown-tail moth somewhat resembles that of the gypsy moth, but it is laid on the under side of a leaf—seldom on a tree trunk—and is smaller and more elongated and of a brighter reddish-brown color. From July 15 to the end of the month, the white moths lay their eggs in brown, hair-covered masses on the leaves near the top of pear and other trees. Each egg cluster contains about three hundred eggs, closely packed in a mass about two-thirds of an inch long by one-fourth of an inch wide.

*The Caterpillar.*—The eggs hatch during August, and the young caterpillars begin to feed in clusters on the upper surface of the leaves. They soon commence the work of spinning their winter webs. In making the web a number of leaves in the vicinity of the egg clusters are drawn together and carefully spun in with a tenacious silken web. The web is grayish in color, composed of dead leaves and silk, and is very hard to tear apart. Each web contains about two hundred and fifty caterpillars, and varies in length from four to six inches. With the approach of cold weather the caterpillars enter the web and close the exit holes. We then have the strange phenomenon of a caterpillar wintering over when only one-quarter grown, and emerging the following spring to complete its life history. The extremes of cold in Massachusetts do not seem to effect these insects adversely. They emerge in the spring, usually in early April, eat first the buds and then the blossoms, and attack the foliage of fruit trees as soon as it develops. The full-grown caterpillar is about two inches in length, with a broken white stripe on either side and two conspicuous red dots on the back near the posterior end.

Stripping the foliage of one tree, they go to others, and continue to eat until full grown, when the cocoons are spun within the leaves at the ends of the branches or sometimes on the tree trunks.

*The Pupa.*—The caterpillars pupate within their cocoons at the tips of twigs. Usually the mass of cocoons is formed within a spray of leaves, but at times the cocoon is made on a house wall, fence, tree trunk, etc. The pupa is a compact, dark-brown body, about five-eighths of an

inch long, with yellowish-brown hairs scattered over its surface. Pupation takes place the later part of June, and the moths emerge about the middle of July.

*The Moth.* — The moths are pure white on the wings. The male is slender bodied, while the female has a conspicuous bunch of brown hair at the tip of the abdomen, hence the name "brown-tail moth." The female has a wing expanse of about one and one-half inches, the male being slightly smaller.

Both the male and female brown-tail moths fly mainly by night, and are greatly attracted to lights. As in the case of the gypsy moth, all the destructive work of the brown-tail moth is done by its caterpillar, which, unlike the gypsy moth caterpillar, habitually feeds by day.

#### *Distribution.*

The brown-tail moth is known to have spread at least as far to the northeast as Eastport, Me., and as far south as Cape Cod, Mass. To the west it has been found at Amherst, Mass. The eastern portion of Massachusetts from north to south is now quite solidly infested, though less so south of Boston, and the moth doubtless exists in many communities in and out of Massachusetts from which it has not yet been reported.

The female winged brown-tail moth, like the male, is a strong, swift flyer and can carry her eggs long distances before depositing them. For this reason the brown-tail moth has spread much farther from its point of introduction in Massachusetts than has the gypsy moth. In its flight the brown-tail moth is often aided by strong winds. It is also transported on steamboats and in electric and steam cars to which it is attracted at night by the lights.

The caterpillar of the brown-tail moth has, when young, the "spinning down" habit already described in the case of the gypsy moth caterpillar, and is similarly transported by vehicles and pedestrians. The neighborhoods of travelled highways, therefore, should be kept free from the brown-tail as well as from the gypsy moth.

#### THE SPECIES CONTRASTED.

The gypsy moth and the brown-tail moth are constantly confused in the minds of many people. The following marked differences between the two should be noted:—

a. The egg cluster of the gypsy moth is rarely found on the under side of a leaf, and is commonly a rather robust-looking object, often two inches long and relatively thick and broad.



The egg cluster of the brown-tail moth is almost always deposited on the under side of a leaf, and is smaller and more slender than a typical gypsy moth egg cluster.

*b.* The gypsy moth caterpillar, when well grown, has a dark grayish or sooty-colored body, marked conspicuously along the back, counting from the head, with a double row of blue spots followed by a double row of red spots.

The brown-tail moth caterpillar, when well grown, is of a bright tawny or orange-brown color, marked along each side of the body by a conspicuous row of pure white spots, and having two bright red spots at the lower end of the back.

*c.* The female gypsy moth has a wing spread of about two and one-quarter inches, and her general color is a dingy white lightly streaked and blotched with blackish and faint grayish. Her abdomen has no thick, conspicuous patch of golden or brownish hairs at the tip. Though she has large wings (which she often flutters), she does not fly, but merely crawls short distances.

The female winged brown-tail moth is much smaller than the female gypsy moth, with much less spread of wing. Her color is a remarkably pure, unsullied, snow white. At the tip of her abdomen is a very conspicuous unmistakable, sharply contrasted, thick, rounded patch of golden or brownish hairs.

The female brown-tail moth is a swift, strong flyer, mainly flying by night, and is greatly attracted to lights.

*d.* The gypsy moth caterpillar never weaves a nest or web in which to hibernate during cold weather. The gypsy moth winters in the egg form, never as a caterpillar.

The caterpillar of the brown-tail moth always weaves a hibernating nest or web in which to rest torpid during the winter. Throughout cold weather the brown-tail moth is in caterpillar form, dormant and snugly ensconced inside its nest, which is placed at or near the tip of a twig. With the warm weather of spring the brown-tail moth caterpillar does not "hatch", but simply awakens to animation, crawls out of the nest and begins to feed.

*e.* The gypsy moth does not, in any of its forms, produce noteworthy irritation of the human skin.

The brown-tail moth caterpillars and cocoons, by reason of their hairs, cause a most annoying and painful irritation. The female brown-tail moths, in their struggles to emerge from the cocoons, often acquire a certain number of caterpillar hairs, and hence are sometimes, though rarely, the cause of the irritation above mentioned.



## REMEDIES AGAINST THE MOTHS.

*The Gypsy Moth.*

*Egg killing.*—No single method of destruction against the gypsy moth is more effective than killing the eggs. The egg masses wherever accessible can be killed from August to May by soaking them thoroughly with creosote mixture. The creosote may be applied with a small swab or paint brush. In killing gypsy moth eggs in high trees, it is usually best to work with two men; one man to point out the egg clusters from the ground, another to kill the eggs in the trees. Creosote mixture may be purchased at agricultural warehouses and seed stores at from fifty cents to one dollar per gallon, depending on quantity.

Where trees and shrubbery (especially low-cost woodland and unimproved tracts of brush) are extensively infested with the eggs of the gypsy moth, the growth should be cut and burned. The eggs are, however, remarkably resistant to fire, and an intense heat applied directly to the clusters is required to kill them all. Where the clusters are very plentiful, burning the ground over with oil to destroy eggs scattered as a result of the cutting of trees and bushes will be required to insure thorough work.

*Caterpillar Destruction.*—Spraying infested foliage with arsenate of lead at the rate of ten pounds to one hundred gallons of water is very effective when the caterpillars are small. Any of the common hand outfits will suffice for the spraying of shrubs or flowering plants. For use on trees, a pump mounted on a barrel or hogshead is desirable. The poison should be thoroughly mixed in water, and applied, if possible, on a clear, dry day, in such a manner as to cover the leaves, rather slowly, with a fine mist. The foliage should never be drenched with a stream. When the leaves begin to drip, spraying should at once cease. Spraying should begin at the top of the trees. This work is most effective when done during early May and early June. Where tall street trees or trees in easily accessible woodland are to be sprayed, the use of a power outfit is to be recommended. Steam or gasoline engine sprayers are not so economical of the spray as hand pumps, but make a great saving in the cost of labor. Furthermore, with a properly equipped power outfit the work can be done with the greatest possible rapidity. Where arsenate of lead cannot be obtained, Paris green, one pound to one hundred and fifty gallons of water, may be used, but it should be borne in mind that this insecticide often scorches the foliage, and that it washes off with the first rain. Arsenate of lead is not open to these objections.

Burning over infested wood or brush land in May or June is a very

effective method of destroying gypsy moth caterpillars, and is the logical complement to the method of egg killing by burning previously described. The trees and bushes should be cut before the hatching time of the eggs, and may be left lying as they fall. A few trees should be left standing, and to these such caterpillars as escape the burning will resort for food, and they may then be killed by spraying or by burlapping, as described farther on. The burning of the fallen trees and brush should be done when the caterpillars are very young and small. At this time they quickly succumb to flame. When the caterpillars are older, burning is less effective.

If a strip of burlap or other coarse, cheap cloth is tied about an infested tree trunk by the middle, in such manner that the flaps hang down, the caterpillars, as soon as they have acquired the night-feeding habit, will gather under the cloth and can then be destroyed by crushing or by cutting with a sheath knife. The burlaps should be examined daily, or, when the caterpillars are in great numbers in a locality, several times a day. Burlap can be successfully employed from the latter half of May to the first or middle of August, for the caterpillars commonly pupate under burlap and winged moths lay many eggs under it. It should be borne in mind that the cloth band is in no sense a tree protector; nor is it a trap. Its function is simply to give the shelter which the caterpillars seek by day. Serving as it does as a hiding place for various insects, it is better off the tree than on unless it can be attended to and kept clean. At the end of the caterpillar season, all burlaps should be removed and burned. To insure best results on high trees, such as street elms, burlaps should be placed around some of the larger limbs, as well as around the trunk, as many caterpillars will seek shelter up in the tree rather than descend to the ground. The most effective results in using the burlap are obtained where cavities, crevices, etc., in the trees have been first filled with cement or covered with zinc and all loose bark removed. If these hiding places are destroyed, nearly all the caterpillars will seek the burlap at some time during the season.

Banding a non-infested tree with insect lime or other sticky substance or mixture to keep the caterpillars out of it is an affective means of protection, provided the branches of the tree do not interlock with those of an infested tree, and provided the two do not stand so near that the small caterpillars can pass from the infested tree to the other by means of their fine threads. A band of whatever material composed, to be effective must remain sticky. When caterpillars are numerous in a place, they often, in their attempts to cross the band, bridge it over with their threads and dead bodies, with the result that other caterpillars coming later are able to ascend the tree. For this reason and in order

that the caterpillars which collect beneath may be killed, the sticky band should be frequently inspected. If the many caterpillars which frequently "herd" below the sticky bands are not killed, they will in time leave the trees for shrubbery, where they are less easily destroyed, there to complete their feeding period and transform into moths. Insect lime, raupenleim, tanglefoot, bodlime, printer's ink or even axle grease are among the materials most used for banding. All may be dangerous to the tree and should be removed after the caterpillar season has passed.

*Destroying Pupæ and Moths.*—Pupæ are commonly found under the burlap and in other places frequented by the caterpillars. They are often massed under large branches or in other sheltered places. In similar locations the female moths may be found in numbers. Both forms of the insect may be crushed by hand to advantage during July and August.

### *The Brown-tail Moth.*

*The Eggs.*—The gathering of leaves which bear egg masses is only feasible in the case of shrubs and young trees where the foliage may be reached from the ground. Rose bushes, dwarf fruit trees and ornamental shrubs often may be cleared from the moth in this way.

*The Caterpillar.*—The winter webs or nests containing the hibernating caterpillars are conspicuous objects at the tips of twigs from October to April. These webs should be sought out and removed by the use of pole shears or long-handled pruners, and then carefully collected and burned. It is more satisfactory, where possible, to burn the webs in a furnace or stove, since, where an open bonfire is used, extra care must be taken to see that none of the webs escape with a mere scorching. When a light snow is on the ground, the work of web destruction and gathering can be carried on to best advantage, although it is desirable that the work should be done as early as possible in the season after the leaves fall. Where tall trees are infested, two men, one to point out the nests from the ground, the other in the tree to cut off the nests, can work more rapidly and economically than one man. It should be borne in mind that webs cut off and thrown on a dump heap as well as those that are beaten off by storms will yield their quota of caterpillars the following spring.

Of all means of combating the brown-tail moth, web destruction as above outlined is the remedy *par excellence*.

Spraying is very effective against brown-tail moth caterpillars, since they are much less resistant to the action of poison than are those of the gypsy moth. To secure best results, spraying should be done as soon as the foliage develops in the spring. Five to eight pounds of the arsenate

of lead paste to one hundred gallons of water is sufficient for the spray, or, if preferred, one pound of good Paris green kept well stirred in one hundred and fifty gallons of water may be applied. The directions given for spraying gypsy moth caterpillars should be followed in the case of those of the brown-tail moth. Spraying may be done not only in the spring, but also in August when the caterpillars hatch from the egg, except in cases of trees in fruit.

Spraying or sprinkling with kerosene emulsion or strong soap suds is often useful in destroying the swarming caterpillars on fences, walks, etc.

Such trees as are free from brown-tail moths may be protected from the caterpillars which crawl from neighboring estates by applying a sticky band. The banding will not prevent the infestation of the trees by the female winged moths, which, flying in July, will alight on the foliage of such trees and deposit their egg clusters thereon. It is therefore clear that sticky banding, when used against brown-tail caterpillars, has a more strictly limited usefulness than in the case of the gypsy moth.

*The Pupæ.*—When the caterpillars have changed to pupæ enclosed by their cocoons, these may be gathered, although the work is likely to be attended by severe inflammation of the skin from contact with the nettling hairs. Cocoons thus gathered should be placed in a barrel covered with mosquito netting, so that any parasites may escape while the moths are confined. Brown-tail moth pupæ are most numerous during the latter half of June.

*The Moths.*—As has already been mentioned, the moths assemble in great numbers around electric and other lights. It often occurs that a lamp pole on a morning during the flying season is covered by hundreds if not thousands of the winged moths. In such cases the free use of the hose will wash down and kill the insects. No effective form of lamp trap has yet been devised, and, in fact, it is not at all clear that the brown-tail moth can be combated economically in the winged stage.



## LAW RELATING TO GYPSY AND BROWN-TAIL MOTHS.

[CHAP. 381.]

AN ACT TO PROVIDE FOR SUPPRESSING THE GYPSY AND BROWN-TAIL MOTHS.

*Be it enacted, etc., as follows:*

SECTION 1. For the purposes of this act the pupæ, nests, eggs and caterpillars of the gypsy and brown-tail moths and said moths are hereby declared public nuisances, and their suppression is authorized and required; but no owner or occupant of an estate infested by such nuisance shall by reason thereof be liable to an action, civil or criminal, except to the extent and in the manner and form herein set forth.

SECTION 2. The governor, by and with the consent of the council, shall appoint a superintendent for suppressing the gypsy and brown-tail moths and shall determine his salary. The governor may, with the consent of the council, remove said superintendent at any time for such cause as he shall deem sufficient. In case of the death, removal or resignation of the superintendent the governor shall forthwith appoint a successor. On or before the third Wednesday in January in each year the superintendent shall make a report of his proceedings to the general court, which shall be a public document and shall be printed. Said report shall separate so far as is practicable the expenditures on work against the gypsy moth from those on work against the brown tail moth in each city and town.

SECTION 3. The said superintendent shall act for the Commonwealth in suppressing said moths as public nuisances, in accordance with the provisions of this act. For this purpose he shall establish an office and keep a record of his doings and of his receipts and expenditures, and may make rules and regulations. He may employ such clerks, assistants and agents, including expert advisers and inspectors, as he may deem necessary and as shall be approved by the governor. He may make contracts on behalf of the Commonwealth; may act in co-operation with any person, persons, corporation or corporations, including other states, the United States or foreign governments; may conduct investigations and accumulate and distribute information concerning said moths; may devise, use and require all other lawful means of suppressing or preventing said moths; may lease real estate when he deems it necessary, and, with the approval of the board in charge, may use any real or personal property of the Commonwealth; may at all times enter upon the land of the Commonwealth or of a municipality, corporation, or other owner or owners, and may use all reasonable means in carrying out the purposes of this act; and, in the undertakings aforesaid, may, in accordance with the provisions of this act, expend the funds appropriated or donated therefor; but no expenditure shall be made or liability incurred in excess of such appropriations and donations.

SECTION 4. Cities and towns by such public officer or board as they shall designate or appoint, shall, under the advice and general direction of said superintendent, destroy the eggs, pupæ and nests of the gypsy and brown-tail moths within their limits, except in parks and other property under the control of the Commonwealth, and except in private property, save as otherwise provided herein. When any city or town shall have expended within its limits city or town funds to an amount in excess of five thousand dollars in any one calendar year, in suppressing gypsy or brown-tail moths, the Commonwealth shall reimburse such city or town to the extent of fifty per cent. of such excess above said five thousand dollars.

Cities or towns, where one twenty-fifth of one per cent. of the assessed valuation of real and personal property is less than five thousand dollars, and where the assessed valuation of real and personal property is greater than six million dollars, shall be reimbursed by the Commonwealth to the extent of eighty per cent. of the amount expended by such cities or towns of city or town funds in suppressing the gypsy and brown-tail moths in any one calendar year, in excess of said one twenty-fifth of one per cent.

In the case of towns where the assessed valuation of real and personal property is less than six million dollars, after they have expended in any one calendar year town funds to an amount equal to one twenty-fifth of one per cent. of their assessed valuation of real and personal property, the Commonwealth shall expend within the



limits of such towns, for the purpose of suppressing the gypsy and brown-tail moths, such an amount in addition as the superintendent with the advice and consent of the governor shall recommend. Disbursements made by said last named towns in excess of said one twenty-fifth of one per cent. shall be reimbursed by the Commonwealth every sixty days; but in the case of all others the Commonwealth shall reimburse cities and towns annually according to the provisions of this act.

No city or town shall be entitled to any reimbursement from the Commonwealth until it has submitted to the auditor of the Commonwealth itemized accounts and vouchers showing the definite amount expended by it for the purpose of this act; nor shall any money be paid out of the treasury of the Commonwealth to cities or towns, pursuant to the provisions of this act, until said vouchers and accounts have been approved by the auditor of the Commonwealth.

For the purposes of this section the years nineteen hundred and five and nineteen hundred and seven shall be considered half years, and the valuation for the year nineteen hundred and four shall be taken as a basis.

SECTION 5. When, in the opinion of the superintendent, any city or town is not expending a sufficient amount for the abatement of said nuisance, then the superintendent shall, with the advice and consent of the governor, order such city or town to expend such an amount as the superintendent shall deem necessary: *provided*, that no city or town where the assessed valuation of real and personal property exceeds six million dollars shall be required to expend during any one full year more than one fifteenth of one per cent. of such valuation, and that no town where the assessed valuation of real and personal property is less than six million dollars shall be required to expend during any one full year more than one twenty-fifth of one per cent. of such valuation. For the purposes of this section the valuation of the year nineteen hundred and four shall be used.

Any city or town failing to comply with the directions of the said superintendent in the performance of said work within the date specified by him shall pay a fine of one hundred dollars a day for failure so to do; said fine to be collected by information brought by the attorney-general in the supreme judicial court for Suffolk county.

SECTION 6. The mayor of every city and the selectmen of every town shall, on or before the first day of November in each year, and at such other times as he or they shall see fit, or as the state superintendent may order, cause a notice to be sent to the owner or owners, so far as can be ascertained, of every parcel of land therein which is infested with said moths; or, if such notification appears to be impracticable, then by posting such notice on said parcels of land, requiring that the eggs, pupæ and nests of said moths shall be destroyed within a time specified in the notice.

When, in the opinion of the mayor or selectmen, the cost of destroying such eggs, pupæ and nests on lands contiguous and held under one ownership in a city or town shall exceed one half of one per cent. of the assessed value of said lands, then a part of said premises on which said eggs, pupæ or nests shall be destroyed may be designated in such notice, and such requirements shall not apply to the remainder of said premises. The mayor or selectmen may designate the manner in which such work shall be done, but all work done under this section shall be subject to the approval of the state superintendent.

If the owner or owners shall fail to destroy such eggs, pupæ or nests in accordance with the requirements of the said notice, then the city or town, acting by the public officer or board of such city or town designated or appointed as aforesaid, shall, subject to the approval of the said superintendent, destroy the same, and the amount actually expended thereon, not exceeding one half of one per cent. of the assessed valuation of said lands, as heretofore specified in this section, shall be assessed upon the said lands; and such an amount in addition as shall be required shall be apportioned between the city or town and the Commonwealth in accordance with the provisions of section four of this act. The amounts to be assessed upon private estates as herein provided shall be assessed and collected, and shall be a lien on said estates, in the same manner and with the same effect as is provided in the case of assessments for street watering.

SECTION 7. If, in the opinion of the assessors of a city or town, any land therein has received, by reason of the abatement of said nuisances thereon by said superintendent or by said city or town, a special benefit beyond the general advantage to all land in the city or town, then the said assessors shall determine the

value of such special benefit and shall assess the amount thereof upon said land: *provided*, that no such assessment on lands contiguous and held under one ownership shall exceed one half of one per cent. of the assessed valuation of said lands; and *provided*, that the owner or owners shall have deducted from such assessment the amount paid and expended by them during the twelve months last preceding the date of such assessment toward abating the said nuisances on said lands, if, in the opinion of the assessors, such amount has been expended in good faith. Such assessment shall be a lien upon the land for three years from the first day of January next after the assessment has been made, and shall be collected under a warrant of the assessors to the collector of taxes of such city or town, in the manner and upon the terms and conditions and in the exercise of the powers and duties, so far as they may be applicable, prescribed by chapter thirteen of the Revised Laws relative to the collection of taxes.

Real estate sold hereunder may be redeemed within the time, in the manner, and under the provisions of law, so far as they may be applicable, set forth in chapter thirteen of the Revised Laws for the redemption of land sold for taxes.

A person aggrieved by such assessment may appeal to the superior court for the county in which the land lies, by entering a complaint in said court within thirty days after he has had actual notice of the assessment, which complaint shall be determined as other causes by the court without a jury. The complaint shall be heard at the first sitting of said court for trials without a jury after its entry; but the court may allow further time, or may advance the case for speedy trial, or may appoint an auditor as in other cases. The court may revise the assessment, may allow the recovery back of an amount wrongfully assessed which has been paid, may set aside, in a suit begun within three years from the date thereof, a collector's sale made under an erroneous assessment, may award costs to either party and may render such judgment as justice and equity require.

If, in the opinion of the assessors, the owner of an estate upon which an assessment, as aforesaid has been made, by reason of age, infirmity or poverty unable to pay the assessment, they may upon application abate the same. Every city or town in rendering an account to the state auditor as provided for in section four of this act shall deduct from such amount as it has expended in excess of one twenty-fifth of one per cent. or of five thousand dollars as provided in said section, the total amount it has received for work performed under section six of this act during the term covered by the account: *provided*, such work was performed under such conditions as required reimbursement in whole or in part by the State.

SECTION 8. To meet the expenses incurred under authority of the act, there shall be allowed and paid out of the treasury of the Commonwealth, during the period up to and including May first, nineteen hundred and seven, the sum of three hundred thousand dollars. Of this amount seventy-five thousand dollars may be expended during the calendar year nineteen hundred and five; one hundred and fifty thousand dollars, and any unexpended balance of the previous year, may be expended during the calendar year nineteen hundred and six; and seventy-five thousand dollars, and any unexpended balance of the previous years, may be expended during the calendar year nineteen hundred and seven, up to and including May first.

SECTION 9. An additional sum of ten thousand dollars in each of the years nineteen hundred and five, nineteen hundred and six and nineteen hundred and seven may, in the discretion of the state superintendent, be expended by him for experimenting with parasites or natural enemies for destroying said moths, and any unexpended balance of any year may be expended in the subsequent years.

SECTION 10. Chapter two hundred and ten of the acts of the year eighteen hundred and ninety-one and sections one and two of chapter five hundred and forty-four of the acts of the year eighteen hundred and ninety-eight and section two of chapter fifty-seven of the acts of the year nineteen hundred and two, are hereby repealed.

SECTION 11. A person who wilfully resists or obstructs the superintendent or an official of a city or town, or a servant or agent duly employed, while lawfully engaged in the execution of the purposes of this act, shall forfeit a sum not exceeding twenty-five dollars for each offence.

SECTION 12. Valuations of real and personal property of the year nineteen hundred and four shall govern the provisions of this act.

SECTION 13. This act shall take effect upon its passage. [Approved May 8, 1905.]

## PLAYGROUNDS IN CAMBRIDGE.

The manifest disadvantages that the City of Cambridge now labors under in the matter of public parks and playgrounds should meet with some speedy recognition by the City Government. The motive of these long felt wants is now so urgent as to demand public action toward their fulfillment. We have shown a very commendable interest for some years past in matters pertaining to rapid transit and beautifying the approach to the City and even the internal improvements have not been neglected, but we have shown a wilful disregard for the needs of our young.

The example of our sister city across the Charles is worthy of emulation. Pioneers in the work, they have now come to be regarded as possessing the finest system of parks and playgrounds in the country. Realizing the needs of any congested community where the recreations and joys of country life are, perforce, denied to city youths, they have installed playgrounds in various parts of the city to provide proper development of the young.

The rapid growth of cities and their spreading industries gradually but surely encroach upon the domains of youth and some means must be devised to fill the wants. Recreations in the spring time of youth are just as essential to the proper development of man as intellectual training, for one is the complement of the other.

The agitation for parks and playgrounds is no new theory. It has come to be regarded just as necessary to a city's welfare as the building of streets or the providing of the latest sanitary facilities. Delegations from every large city in the country come east to inspect the system of parks and playgrounds and as a result of their investigations playgrounds are now to be found in every city of consequence. San Francisco, Chicago, Minneapolis, St. Paul, Denver, St. Louis, New Orleans, Baltimore, Philadelphia, Buffalo, New York and hundreds of other cities and towns have now a most advanced system of playgrounds and gymnasia.

To those who have watched the development of Cambridge during the past decade, it can readily be seen that in a very short time the march of industry will have absorbed the available space in the community. To anticipate the condition that will result from this advance it behooves a prominent municipality to provide breathing spaces for its people. The conditions existing in the tenement districts of New York and Boston are most appalling and to relieve the suffering and allay the diseases in these communities has been one of the most serious problems that confronted the city authorities. The opening of playgrounds in these sections, and the vast throngs who took advantage of their blessings

amply repaid the expenditures that they occasioned. Such conditions should not be left to happen here. We should make some provision for these conditions which are inevitable.

Spaces should be set off in different parts of the City to provide for a general meeting place for the several communities. Lots could be laid out for the games of the young. Ball parks and skating fields and shower baths in a locker building could be provided. The baths could be opened for the public use at all seasons of the year and altogether the benefit to the public would be inestimable.

Monies that are now devoted to less urgent needs should be appropriated for this work, and it would meet with universal approval. We trust the City Government will awaken to this popular call for playgrounds and provide something in this line for the direct want of the people.



## THE YEAR'S EXPENDITURES.

The expenses of the department for the year are shown in the following summary of the departmental accounts:—

## PARK LOANS.

(Lands and Construction.)

Amount of unused balance of 1904 appropriation reappropriated	
December 7, 1904 . . . . .	\$5,423 87
Amount appropriated March 25, 1905 . . . . .	35,000 00
	<hr/>
	\$40,423 87

## EXPENDED.

*River Parkway, Section A.*

Pay-roll . . . . .	\$5,234 50	
Loam . . . . .	535 87	
Ashes . . . . .	266 30	
Engineering . . . . .	140 25	
Teaming . . . . .	87 38	
Street watering . . . . .	85 00	
Picks and handles . . . . .	29 50	
Stakes for engineers . . . . .	10 00	
	<hr/>	\$6,388 80

*River Parkway, Section B.*

Pay-roll . . . . .	\$3,094 75	
Teaming . . . . .	72 50	
Engineering . . . . .	33 00	
Street watering . . . . .	59 50	
Ashes . . . . .	22 82	
Lawn mowers . . . . .	15 70	
Repairs to water pipes . . . . .	7 92	
Turning water off and on . . . . .	2 00	
Pails and dippers . . . . .	72	
Making eye bolt . . . . .	56	
	<hr/>	3,309 47

*River Parkway, Section C.*

Pay-roll . . . . .	\$1,043 75	
Filling . . . . .	476 61	
Engineering . . . . .	299 76	
Street watering . . . . .	59 50	
Hardware . . . . .	1 20	
	<hr/>	1,880 82

*River Parkway, Section D.*

Ashes . . . . .	\$5,440 04	
Pay-roll . . . . .	4,810 09	
Filling . . . . .	1,194 30	
Engineering . . . . .	827 75	
Building new lockers and repairs to old ones at Captain's Island . . . . .	267 15	
Teaming . . . . .	210 00	
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Amounts carried forward . . . . .	\$12,749 33	\$11,579 09	\$40,423 87
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<i>Amounts brought forward</i>	\$12,749 33	\$11,579 09	\$40,423 87
Lighting Captain's Island	186 22		
Street watering	85 00		
Paint	55 00		
Stonedust	48 35		
Wheel barrows	48 00		
Hardware	42 90		
Clock, and installing same at Captain's Island	29 73		
Lumber, (back stop)	17 80		
Lawn mowers	15 70		
Weeding blades	12 09		
Stakes for engineers	10 25		
Loam	9 18		
Coal	4 10		
Water off and on	1 00		
Oakum and putty	40		
		13,314 96	
<i>River Parkway, Section F.</i>			
Pay-roll	\$3,389 00		
Ashes	1,424 95		
Insurance on Weld Boat House	360 00		
Filling	207 08		
Loam	132 74		
Street watering	85 00		
Repairing Weld Boat House	84 04		
Teaming	83 75		
Engineering	79 75		
Sods	27 09		
Bicycle repairs	8 75		
Tools	2 00		
Gravel	1 05		
		5,885 20	
<i>Nursery.</i>			
Pay-roll	\$816 00		
Coal	6 40		
		822 40	
<i>General Account.</i>			
Salary of Gen. Supt. of Parks	\$1,500 00		
Pay-roll	789 00		
Wrought iron fence around Washington Elm	519 00		
Hire of horse	280 00		
Rent of stables	270 00		
Hay and grain	217 08		
Car tickets	200 00		
Horse	200 00		
Printing and binding report of 1904	153 15		
Horse shoeing	80 75		
Exchange of carriage	80 00		
Tip cart	60 00		
New stalls and repairs to stables	58 72		
Lumber	52 46		
Garden hose	41 50		
<i>Amounts carried forward</i>	\$4,501 66	\$31,601 65	\$40,423 87

<i>Amounts brought forward</i>	.	.	.	.	\$4,501 66	\$31,601 65	\$40,423 87
Harness . . . . .	.	.	.	.	25 00		
Hardware, tools, etc. . . . .	.	.	.	.	24 43		
Horse blankets, etc. . . . .	.	.	.	.	14 75		
Water rates, stable . . . . .	.	.	.	.	11 50		
Repairing bicycle . . . . .	.	.	.	.	10 00		
Steel tape for engineers . . . . .	.	.	.	.	9 00		
Sods . . . . .	.	.	.	.	8 85		
Lubricating oil . . . . .	.	.	.	.	8 23		
Stakes for engineers . . . . .	.	.	.	.	7 53		
Hire of sleigh . . . . .	.	.	.	.	6 00		
Printing . . . . .	.	.	.	.	5 50		
Photographic supplies . . . . .	.	.	.	.	5 21		
Animal food . . . . .	.	.	.	.	5 00		
Paints, etc. . . . .	.	.	.	.	3 85		
Wagon repairs . . . . .	.	.	.	.	3 50		
Clipping horse . . . . .	.	.	.	.	3 00		
Expressage . . . . .	.	.	.	.	2 00		
Miscellaneous supplies . . . . .	.	.	.	.	50		
						4,655 51	
<i>Office Expenses.</i>							
Pay-roll . . . . .	.	.	.	.	\$663 34		
Telephone service . . . . .	.	.	.	.	129 06		
Stationery . . . . .	.	.	.	.	64 78		
Printing and stock . . . . .	.	.	.	.	41 00		
Postage stamps . . . . .	.	.	.	.	28 50		
Pay-roll book . . . . .	.	.	.	.	18 75		
Rubber stamps and repairing . . . . .	.	.	.	.	4 80		
Flower boxes . . . . .	.	.	.	.	3 60		
Cambridge Directory, 1905 . . . . .	.	.	.	.	3 50		
Repairing telephone call bell and door opener . . . . .	.	.	.	.	2 40		
Subscription Municipal Journal and Engineer . . . . .	.	.	.	.	2 00		
Cotton cloth . . . . .	.	.	.	.	44		
						962 17	
Total . . . . .	.	.	.	.			37,219 33
Balance unexpended . . . . .	.	.	.	.			\$3,204 54

## PARK LOANS.

(Lands and Construction.)

*Grading at Rindge Field.*

Amount appropriated May 11, 1905 . . . . . \$1,000 00

## EXPENDED.

Pay-roll . . . . . \$824 84  
Engineering . . . . . 22 00

Total . . . . . 846 84

Balance unexpended . . . . . \$153 16

*Shelter at Rindge Field.*

Amount appropriated May 11, 1905 . . . . . \$4,000 00

(Not expended in 1905.)

*East Cambridge Embankment.*

Amount appropriated May 11, 1905 . . . . . \$15,000 00

## EXPENDED.

Pay-roll . . . . .	\$9,589 75
Teaming . . . . .	893 76
Ballast . . . . .	742 20
Loam . . . . .	681 91
Tools . . . . .	218 65
Engineering . . . . .	197 99
Stakes for engineers . . . . .	55 00
Making ring bolts . . . . .	10 47
Bicycle repairing . . . . .	7 00
Pails and dippers . . . . .	1 95
Lumber . . . . .	1 37
Twine . . . . .	95

Total . . . . . 12,401 00

Balance unexpended . . . . . \$2,599 00

## PARK MAINTENANCE.

*Brown-Tail Moth Extermination.*

Amount appropriated January 14, 1905 . . . . . \$4,000 00  
 Amount appropriated March 9, 1905 . . . . . 2,000 00  
 Amount appropriated April 5, 1905 . . . . . 1,000 00  
 Amount appropriated June 15, 1905 . . . . . 1,000 00  
 Amount appropriated September 1, 1905 . . . . . 2,000 00  
 Amount appropriated November 16, 1905 . . . . . 2,000 00

\$12,000 00

## EXPENDED.

Pay-roll . . . . .	\$10,493 21
Creosote . . . . .	383 05
Disparene . . . . .	105 00
Entertaining Finance Committee . . . . .	68 10
Hardware, tools, etc. . . . .	65 17
Spraying pump . . . . .	65 00
Repairs to old ladders . . . . .	41 10
Printing and stock . . . . .	22 50
New ladder . . . . .	19 50
Expressage . . . . .	11 90
Lumber (for handles for clippers) . . . . .	10 37
Printing notices to "property owners" . . . . .	10 00
Lumber . . . . .	7 11
Disinfectant . . . . .	6 25
"Tanglefoot" for trees . . . . .	6 25
Kerosene oil . . . . .	5 50
Paints . . . . .	1 92
Repairing bicycle . . . . .	1 00
Pails for disparene . . . . .	75
Bagging for trees . . . . .	37

Total . . . . . 11,324 05

Balance unexpended . . . . . \$675 95

*Cambridge Field and Shelter.*

Amount appropriated March 25, 1905 . . . . . \$6,000 00

## EXPENDED.

Pay-roll . . . . .	\$4,024 25
Lighting . . . . .	726 36
Repairing shower baths . . . . .	388 15
Towels . . . . .	191 00
Paint . . . . .	152 30
Coal . . . . .	150 00
Re-constructing electric lights . . . . .	106 20
Loam . . . . .	52 40
Building benches in locker room . . . . .	52 00
Laundering towels . . . . .	31 89
Teaming . . . . .	21 00
Toilet paper . . . . .	18 00
Awnings . . . . .	16 00
Plumbing . . . . .	12 80
Hardware . . . . .	10 50
Miscellaneous supplies . . . . .	8 80
Soap . . . . .	7 00
Brushes . . . . .	6 44
Grate for catch basin . . . . .	5 20
Feather dusters . . . . .	4 50
Repairing drinking fountain . . . . .	3 30
Expressage . . . . .	3 25
Mops . . . . .	2 10
Lumber . . . . .	2 00
Printing . . . . .	2 00
Lime and cement . . . . .	1 65
Dippers . . . . .	45

Total . . . . . 5,999 54

Balance unexpended . . . . . \$0 46

*Commons, Squares and Public Grounds.*

Amount appropriated March 25, 1905 . . . . . \$5,000 00

## EXPENDED.

Pay-roll . . . . .	\$4,021 13
Lighting . . . . .	348 00
Housing top masts, fixing halyards, etc. . . . .	104 00
Assorted plants (for flower beds) . . . . .	96 00
Lumber for walks . . . . .	60 90
Bulbs . . . . .	60 68
Teaming . . . . .	47 50
Hardware . . . . .	44 50
Repairing iron fence at Dana Square . . . . .	41 00
Grass seed . . . . .	31 00
Garden hose . . . . .	28 00
Shrubs ( <i>Berberis Thumbergii</i> ) . . . . .	22 00
Paint . . . . .	15 88
Flag and repairing . . . . .	14 63

*Amounts carried forward* . . . . . \$4,935 22 \$5,000 00



<i>Amounts brought forward</i>	\$4,935 22	\$5,000 00
Repairing tablet at Cambridge Common	13 40	
Loam	9 60	
Lumber	8 00	
Bicycle repairs	7 25	
Fixings for lawn mowers	7 20	
Wire	6 13	
Slats for settees	4 68	
Repairing water pipes	3 25	
Printing	2 50	
Sundries	2 17	
Expressage	30	
Total		4,999 70
Balance unexpended		\$0 30

*Shade Trees.*

Amount appropriated March 25, 1905 . . . . . \$5,000 00

## EXPENDED.

Pay-roll	\$3,985 31	
Tree poles	238 60	
Wire for tree guards	212 52	
Loam	189 40	
Trees	136 00	
Teaming	69 76	
Tools	62 32	
Engineering	41 25	
Marline and lath yarn	20 60	
Sharpening saws	14 90	
Repairing bicycle	11 50	
Repairing fence broken by tree	4 80	
Freight charges on trees	3 52	
Garden hose	2 70	
Kerosene oil	2 40	
Printing cards	1 50	
Printing notices (for trees)	1 00	
Expressage	65	
Handles for saws	50	
Total		4,999 23
Balance unexpended		\$0 77

*Sections A, B, D, F and Rindge Field.*

Amount appropriated March 25, 1905 . . . . . \$3,500 00

## EXPENDED.

<i>Section A.</i>		
Lighting	\$216 36	
<i>Section B.</i>		
Lighting	803 65	
<i>Amounts carried forward</i>	\$1,020 01	\$3,500 00

<i>Amounts brought forward</i> . . . .	\$1,020 01	\$3,500 00
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*Section D.*

Lighting . . . . .	737 18	
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*Section F.*

Lighting . . . . .	288 92	
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*Rindge Field.*

Pay-roll . . . . .	\$896 25	
Lighting . . . . .	253 78	
Teaming . . . . .	174 00	
Engineering . . . . .	74 25	
Stakes for engineers . . . . .	19 50	
Paint . . . . .	10 36	
Advertising for "Shelter" . . . . .	9 50	
Felting for Nursery . . . . .	6 10	
Repairing water pipes . . . . .	4 85	
Hardware . . . . .	2 96	
Expressing . . . . .	1 15	
Grate for stove . . . . .	1 00	
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	1,453 70	

Total . . . . .		3,499 81
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Balance unexpended . . . . .		<u>\$0 19</u>
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*Sections G and H.*

Amount appropriated March 25, 1905 . . . . .	\$3,500 00
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## EXPENDED.

Pay-roll . . . . .	\$2,554 25
Lighting . . . . .	830 51
Street watering . . . . .	85 00
Repairing water pipes . . . . .	21 16
Paving blocks (old) . . . . .	8 00
Expressage . . . . .	75
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Total . . . . .	3,499 67
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Balance unexpended . . . . .	<u>\$0 33</u>
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*Bath House.*

Amount appropriated March 25, 1905 . . . . .	\$2,100 00
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Revenue from Bath House (above \$1,500.00) . . . . .	171 93
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\$2,271 93
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## EXPENDED.

Pay-roll . . . . .	\$1,561 84
Lighting . . . . .	175 37
Bathing suits . . . . .	151 50
Laundering towels . . . . .	147 41
Towels . . . . .	48 60
Manila rope . . . . .	39 34
Paint . . . . .	36 45
Printing and stock . . . . .	32 00
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<i>Amounts carried forward</i> . . . . .	\$2,192 51	\$2,271 93
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<i>Amounts brought forward</i>	\$2,192 51	\$2,271 93
Supplies (thread, tape, needles, etc.)	17 80	
Stockings	17 70	
Wringers and installing same	15 00	
Disinfectant	12 80	
Tubs, clothes line, etc.	5 95	
Kerosene oil	4 25	
Expressage	2 16	
Oars	1 75	
Hardware, tools, etc.	1 12	
Total		2,271 04
Balance unexpended		\$0 89

*General Account.*

Amount appropriated March 25, 1905 . . . . . \$600 00

EXPENDED.		
Rent of stable	\$270 00	
Hay and grain	138 45	
Lumber	39 12	
Paint, etc.	34 50	
Iron frames	29 00	
Coal	25 60	
Harness repairs	25 15	
Shoeing horse	20 50	
Lighting stable	10 28	
Hammers	2 75	
Locks and keys	1 40	
Kerosene oil	1 20	
Grate for stove	85	
Total		598 80
Balance unexpended		\$1 20

Respectfully submitted,

JAMES A. MONTGOMERY,  
*General Superintendent of Parks.*

4373-9















